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Final Manuscript

Screening for Suicide Risk in the Outpatient Electroconvulsive Therapy Population

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Abstract

TITLE: Screening for suicide risk in the outpatient electroconvulsive therapy population

BACKGROUND: Reducing risk for suicide continues to be a national hospital patient safety goal. Suicide is the 10th leading cause of death in the United States and suicide rates have increased 33% in the last decade. It has been found that 83% of those who die by suicide received healthcare services in their last year of life, thus healthcare providers are uniquely suited to play a role in identifying suicidality. The Columbia-Suicide Severity Rating Scale (C-SSRS) is a validated tool developed by Columbia University, University of Pennsylvania, and the University of Pittsburgh and is supported by the National Institute of Mental Health. The C-SSRS has been found to have high sensitivity and specificity in quantifying the severity of suicidal ideation and behavior. Electroconvulsive therapy (ECT) patients are particularly vulnerable due to the likelihood of major affective or psychotic disorders that are resistant to other treatments as ECT is not a first-line treatment. Screening in conjunction with routine ECT treatment can identify individuals with current risk for acting on suicidal behavior and impulses.

PURPOSE: Implementation of suicide screening using a validated tool, the C-SSRS, in the pre-procedural intake process for all ECT outpatients. Current UCSDH practice does not include the use of a validated tool in screening for suicide in this population. Additionally, screening individuals during the course of ECT treatment has not been rigorously studied and demonstrating the incidence of suicidality in this population is valuable.

FRAMEWORK: The Iowa Model of evidence-based practice to promote quality care was used in the development of this project to implement change in the perianesthesia department at the Hillcrest medical campus of the University of San Diego Health (UCSDH).

EVIDENCE-BASED INTERVENTIONS: This project consisted of implementation of the C-SSRS for suicide screening in the outpatient ECT population.

EVALUATION OF RESULTS: During a 4-week period, the C-SSRS was administered 60 times to 25 different ECT outpatients at the UCSDH Hillcrest. The patients were screened using the C-SSRS and based on their responses, were stratified into risk categories and the corresponding interventions were implemented. After 2 weeks of implementation, two ECT outpatients were found to be high risk for suicide. Upon assessment by the psychiatrists performing the ECT, the patients were determined to be safe to discharge home.

Keywords: suicide, suicide screening, electroconvulsive therapy, ECT, Columbia-Suicide Severity Rating Scale, C-SSRS

Screening for Suicide Risk in the Outpatient Electroconvulsive Therapy Population

Suicide is a global issue taking the lives of nearly 800,000 people annually, one person every 40 seconds (World Health Organization, 2004). In the United States, death by suicide is the 10th leading cause of death for all ages (Kochanek et al., 2020). In ages 10–34, it is the second leading cause of death second only to accidents (Centers for Disease Control and Prevention [CDC], 2021). Deaths by suicide have an effect on the individual and societal level. The national cost of reported fatal and non-fatal suicide-related injuries in 2013 was \$53.4 billion (Shepard et al, 2015). The long-term consequences of suicide especially affect those left behind. An estimated 60 people are impacted directly, which includes family, friends, and colleagues. Additionally, those affected by suicide are at higher risk for suicidal behavior and depression (Jenkins, 2002).

Considering the aforementioned, in July 2019 the Joint Commission (TJC) revised National Patient Safety Goal (NPSG) 15.01.01: reduce the risk of suicide. This change in practice requires use of a standardized tool for suicide assessment and environmental risk assessment in all Joint Commission-accredited hospitals. Also, included in the requirement is all behavioral healthcare organizations in which a behavioral health diagnosis is the primary diagnosis for admission (The Joint Commission [TJC], 2018). Another important statistic to consider is 83% of people who complete suicide received healthcare services in their last year of life; only half of those people had a mental health diagnosis at time of death (Amhedani et al., 2014). Psychological autopsies of those who die by suicide have found 91% have a mental health disorder (Cavanagh et al., 2003). This suggests there is a substantial number of psychiatric diagnoses that are missed. These changes made by the TJC were intended to identify individuals at risk, increase suicide prevention, and reduce suicide rates.

Description of the Clinical Problem

The University of San Diego Health (UCSDH) implemented the Columbia- Suicide Severity Rating Scale (C-SSRS) to be used for all in-patients entering the emergency departments and inpatient units. According to Na et al. (2018), the C-SSRS is the gold standard in suicide risk assessment. However, the implementation of the C-SSRS was only in the emergency department, behavioral units, and inpatient admissions. There was no policy at UCSDH to screen outpatient surgery and procedure patients using a standardized tool prior to the implementation of this DNP project.

Included in the outpatient surgery and procedures population are the electroconvulsive therapy (ECT) outpatients. This group of people are particularly vulnerable in that they suffer from major affective or psychotic disorders that are resistant to other treatments as ECT is not a first-line treatment (Kaliora et al., 2018). Suicide is the third leading cause of death in those who suffer from major depressive disorder (Khandoker et al., 2017). ECT is associated with higher suicide risk compared to non-ECT patients (Jorgensen et al., 2020). In addition, a history of suicide attempts is the strongest risk factor for future suicide attempts (Parra-Urbe et al., 2017).

UCSDH is particularly aware of the importance of suicide screening of ECT patients, because recently a UCSDH ECT outpatient inflicted self-harm while changing into a patient gown, just prior to the procedure. This potential sentinel event was the catalyst to a policy change in the perianesthesia population. This project aims to promote a culture in which mental health is not stigmatized and suicide not a topic to be ashamed to discuss. Healthcare providers are uniquely suited to identify suicide risk amongst all of their patients, especially those who are particularly vulnerable, such as ECT patients.

Literature Review

A literature review was conducted to justify and guide this DNP project. Databases accessed included PubMed, CINAHL, EBSCOhost, Cochrane, Academic Search Premier, MEDLINE, Ovid, PsycARTICLES, PsychTESTS, Sage Premier Journals, ScienceDirect, and Wiley Interscience Journals. Keywords used for this search included suicide, suicide screening, suicide prevention, electroconvulsive therapy, ECT, Columbia-Suicide Severity Rating Scale, and C-SSRS. There is conflicting evidence on the importance of screening for suicide risk in healthcare settings.

Some systematic reviews, including one by Zalsman et al. (2016), found insufficient evidence to support screening for suicide in primary care for those without a psychiatric disorder. This is in line with the U.S. Preventive Services Task Force (USPSTF) conclusions made by LeFevre (2014) stating there is insufficient evidence for or against screening for suicide in primary care setting. Though the USPSTF does not have a recommendation for screening for suicide risk, it is still recommended by them for healthcare providers to screen for risk factors (LeFevre, 2014). King et al. (2017) stated, “Despite the cautious policy approach of the USPSTF in making recommendations, we argue that the data are now sufficient to recommend universal screening in healthcare settings, particularly when one weighs the tremendous cost of suicide” (p. 5).

A systematic review by Cavanagh et al. (2003) suggests the most effective way to decreasing suicide rates is improvement of detection and treatment of all mental health disorders, especially in primary care. Psychological autopsies revealed 91% of those who die by suicide have evidence of psychopathology (Cavanagh et al., 2003). Boudreaux et al. (2016) found screening for suicide in the emergency department increased risk detection by two-fold.

Ahmedani et al. (2014) conducted a longitudinal study from 2000–2010 of 5,894 people who died by suicide and were health plan members across eight Mental Health Research Network healthcare systems across eight states. This study found a staggering 83% of those who died by suicide received health care services in their last year of life and half of those people did not have a medically documented mental health diagnosis. Less than one-fourth of those people had a mental health diagnosis in the last 4 weeks of life. These studies were of particular influence in the drive for this DNP project.

A register-based cohort study conducted by Jorgenson et al. (2020) went into depth on association of depression severity and risk for suicide. As one would expect, those who are candidates for ECT are at higher risk for suicide due to more severe depression. A systematic review by Kellner (2016) discussed that people undergoing ECT are naturally more susceptible to dying by suicide. Therefore, it is of utmost importance to screen patients receiving ECT for suicide as they are naturally at higher risk for suicide than the general population.

PICOT Question

The aim of this project is to identify people at high risk for suicide amongst the ECT outpatients using a standardized tool for suicide screening. The PICOT question in this endeavor is, “In the outpatient ECT population, will implementing a standardized tool used for suicide screening, in comparison to current practice, identify people who are at high risk for suicide?”

Evidence-Based Intervention

The C-SSRS is a validated tool with excellent internal consistency (Madan et al., 2016). See Figure 1 for the C-SSRS as it appears in the printed version. It is considered the gold standard in suicide screening at this time and is appropriate for use in the clinical setting (Na et al., 2016; Posner et al., 2014). Additionally, UCSDH has been using the C-SSRS for suicide

Figure 1*Columbia-Suicide Severity Rating Scale*

COLUMBIA - SUICIDE SEVERITY RATING SCALE (CSSRS)		
Ask questions that are in bold and underlined.	Past month	
Ask Questions 1 and 2	YES	NO
1) <u>Have you wished you were dead or wished you could go to sleep and not wake up?</u>	<input type="checkbox"/>	<input type="checkbox"/>
2) <u>Have you had any actual thoughts of killing yourself?</u>	<input type="checkbox"/>	<input type="checkbox"/>
If YES to 2, ask questions 3, 4, 5, and 6. If NO to 2, go directly to question 6.		
3) <u>Have you been thinking about how you might do this?</u> e.g. "I thought about taking an overdose but I never made a specific plan as to when where or how I would actually do it....and I would never go through with it."	<input type="checkbox"/>	<input type="checkbox"/>
4) <u>Have you had these thoughts and had some intention of acting on them?</u> as opposed to "I have the thoughts but I definitely will not do anything about them."	<input type="checkbox"/>	<input type="checkbox"/>
5) <u>Have you started to work out or worked out the details of how to kill yourself? Do you intend to carry out this plan?</u>	<input type="checkbox"/>	<input type="checkbox"/>
6) <u>Have you ever done anything, started to do anything, or prepared to do anything to end your life?</u> Examples: Collected pills, obtained a gun, gave away valuables, wrote a will or suicide note, took out pills but didn't swallow any, held a gun but changed your mind or it was grabbed from your hand, went to the roof but didn't jump; or actually took pills, tried to shoot yourself, cut yourself, tried to hang yourself, etc.	Lifetime <input type="checkbox"/> <input type="checkbox"/>	
If YES, ask: <u>Was this within the past 3 months?</u>	Past 3 Months <input type="checkbox"/> <input type="checkbox"/>	
Risk Screen Rating:		
High Risk:	If the patient responds YES to questions 4, 5, and/or 6 of the CSSRS	
Moderate Risk:	If the patient responds YES to two or more questions from 1,2, and/or 3 of the CSSRS	
Low Risk:	If the patient responds YES to 1 and/or 2 only, <u>they are to be treated as low risk</u>	

screening in the emergency department and all inpatient units since October 2019, making the CSSRS the obvious choice for implementation in perianesthesia. Though TJC does not require all patients to be screened for suicide, they do require all patients with a primary psychiatric diagnosis to be screened. However, all ECT outpatients have a primary psychiatric diagnosis, but this population was being missed. Reasoning for this was a presumption that ECT outpatients

were being closely followed by psychiatry and suicide screening was being done by their primary psychiatric providers, however there was no documentation in UCSDH electronic health record (EHR). It is widely accepted in healthcare that if it was not documented, it was not done. To address this gap, the C-SSRS was to be administered to all ECT outpatients for this DNP project.

Evidence-Based Practice Model

The model selected for this evidence-based practice (EBP) project is the Iowa Model, which was originally developed by Marita G. Titler. This model guides healthcare providers in clinical decision-making and administrative practices that influence healthcare outcomes (Melnick, 2019). The Iowa model consists of a multiphase change practice with feedback loops and has been recently revised and updated by the Iowa Model Collaborative (Melnick, 2019). This model is based on the diffusion of innovations theory and implementation science (See Figure 2).

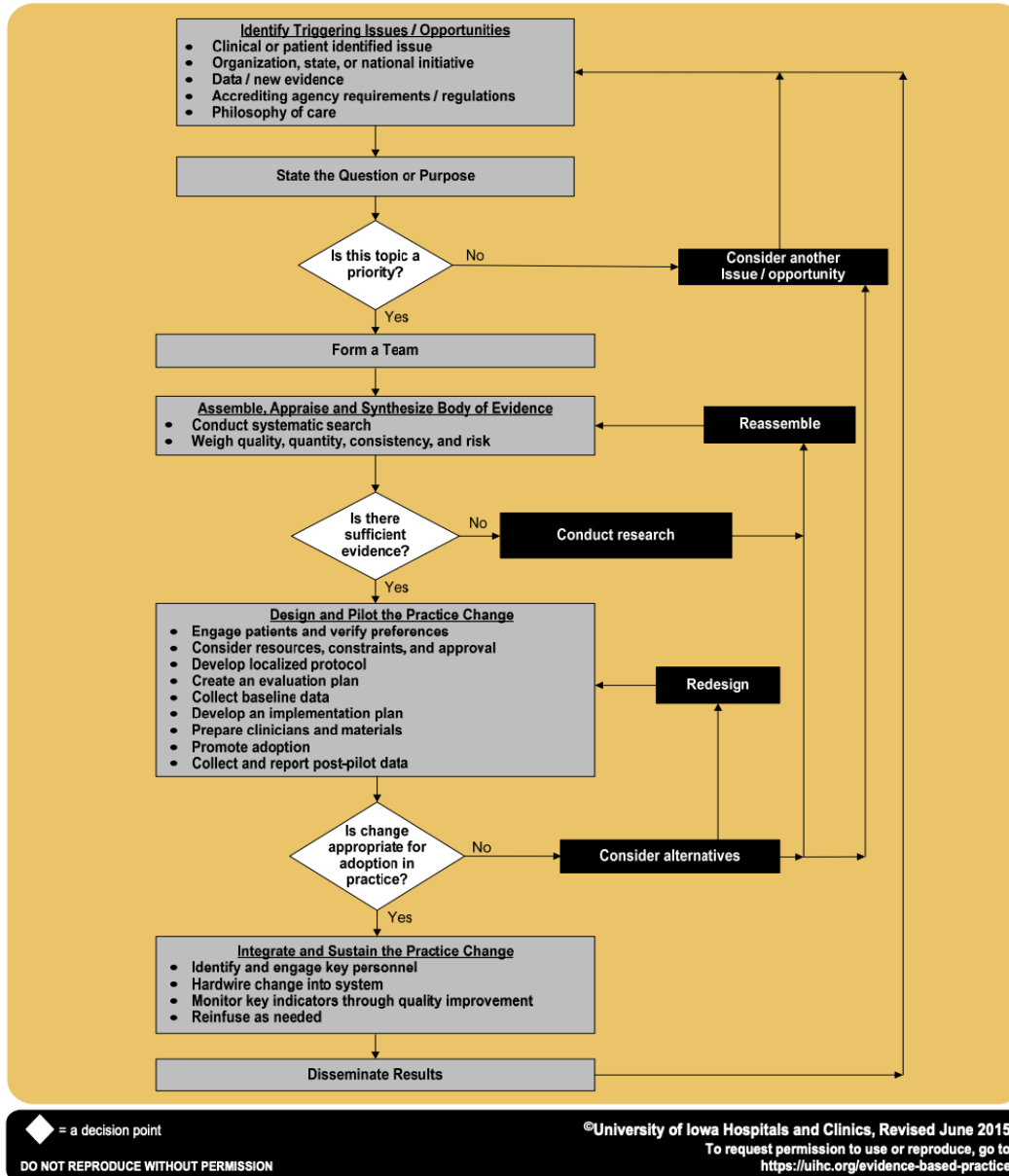
The reason the Iowa Model was chosen for this EBP project is because, “it is a problem-solving approach developed by clinical leaders with expertise in research utilization for healthcare improvement” (Hanrahan et al., 2019). The model was revised after extensive literature review and qualitative and quantitative data. This revision makes the Iowa Model further suited for use in an EBP project. The DNP implemented practice change using the Iowa Model for the following reasons outlined in this section.

A strength of the Iowa Model includes the feedback loops that allow for changes to the EBP project, as needed. Some of these include considering alternative issues or opportunities and redesign of the practice change (Melnick, 2019). Additionally, the Iowa Model has many clinical applications such as interprofessional and operational topics and educational programs

Figure 2

Iowa Model Framework

The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care



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(Melnyck, 2019). The Iowa Model also focuses on priorities for an organization allowing them to align their EBP projects with the strategic plan of the organization (Hanrahan et al., 2019).

The first step of the Iowa Model is to identify triggering issues and opportunities. The triggering issue for this DNP project was the occurrence of self-harm in the pre-operative area just prior to ECT. The next step is to state the question or purpose, which in this case would be the PICOT question, “in electroconvulsive therapy outpatients, will administering a validated tool for suicide screening, in comparison to current practice, identify patients at high risk for suicide.” This topic was identified as a high priority for the senior director of perianesthesia and a team was formed including the perianesthesia nurse educator, psychiatric clinical nurse specialist, and DNP student. The next step was to review literature to justify the practice change. The evidence for screening patients with behavioral diagnoses for suicide risk is robust, as described in the literature review, and justifies the practice change. This led to designing and piloting the practice change at UCSDH Hillcrest perianesthesia which includes ECT outpatients. The change was found to be appropriate for adoption in other patient care areas and will be implemented at other UCSDH locations.

Project Implementation and Practice Change Process

From the start of the DNP program at the University of San Diego, the DNP student had an interest in suicide screening and prevention. The initial target population was to be cardiac transplant patients who are particularly vulnerable due to their many risk factors, such as post-operative stress and prescription medications with side effects, such as depression. Due to communication difficulties with the cardiac transplant clinic, a new population was needed. Incidentally, the previously mentioned incident where an ECT outpatient self-harmed themselves

immediately before their ECT treatment occurred around the same time that a new population was needed to be identified for suicide screening, creating a perfect catalyst for this DNP project. Not only was suicide screening mandated by administration, it was also an opportunity for implementation of an evidence-based tool to be used in practice change.

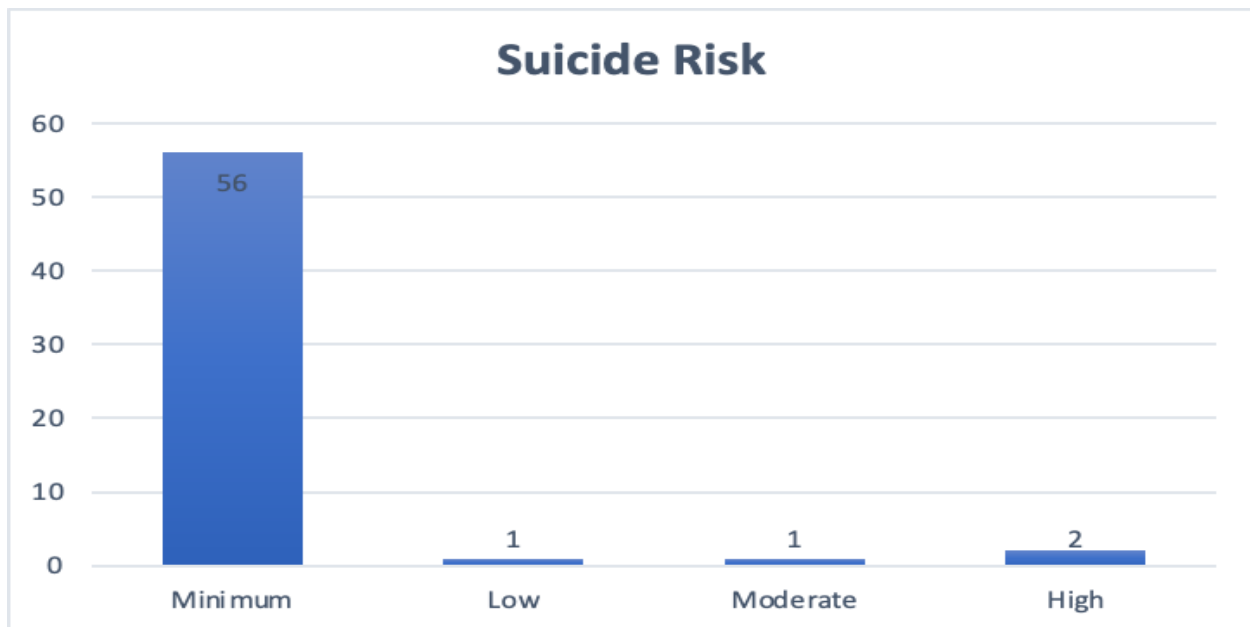
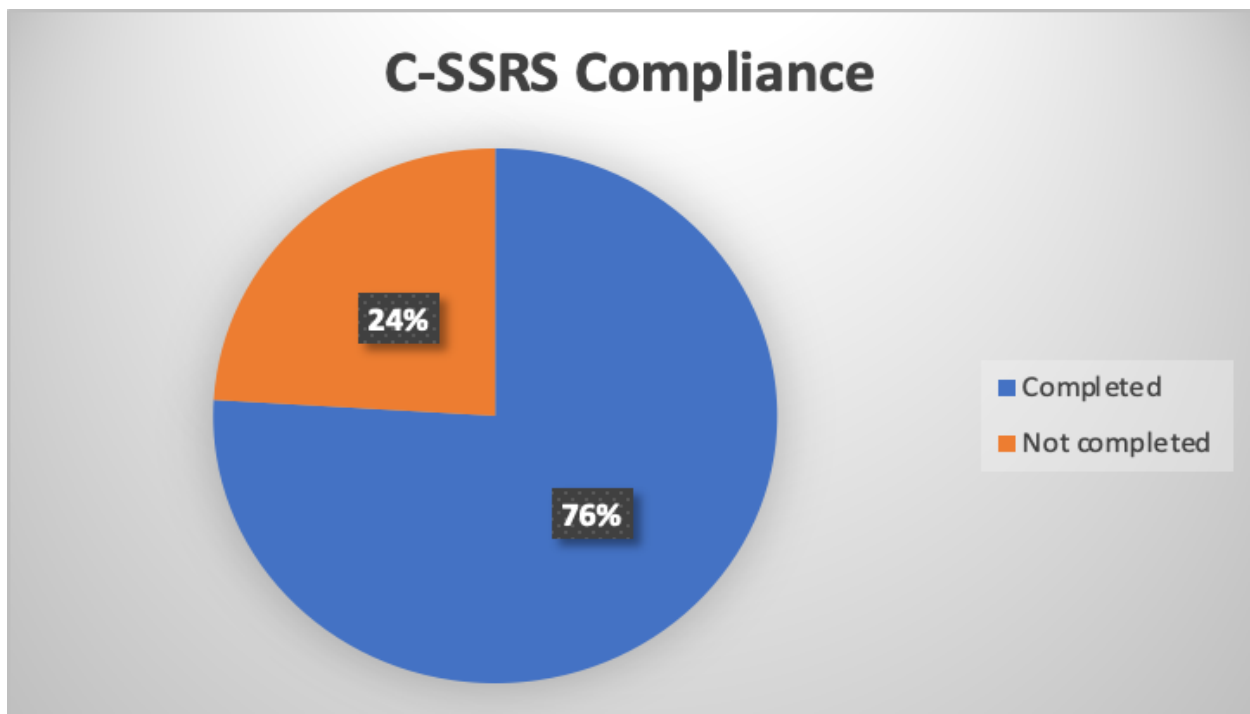
The primary focus for this project was suicide screening in the outpatient ECT population, however implementation was done for all perianesthesia patients per administrative mandate. This includes outpatient surgeries and procedures in addition to ECT. The standard in the UC Health System is to screen all outpatient ECT patients using the C-SSRS. This gap in care was identified with the self-harming event that was the catalyst for change. Per UCSDH policy, all patients are to be screened in their primary care setting. However, the period from date of referral to actual surgery or procedure can be variable and lengthy. In that time, psychosocial stressors and suicide risk can change, which is what motivated UCSDH perianesthesia leadership to mandate screening of all outpatient surgery and procedure patients. Implementing the C-SSRS in the perianesthesia population was a huge opportunity to identify mental health disorders and suicide risk amongst high-suicide risk individuals that could otherwise be missed.

It was at this time the DNP student visited the pre-operative area to observe the workflow and assess feasibility of implementation. There are three private rooms in which ECT patients are prepped for procedure. This was an ideal situation for privacy when administering screening. In front of the three rooms was a small workstation for a clinical care partner, commonly known as a certified nursing assistant, that could observe the three rooms.

Once The Aligning and Coordinating Quality Improvement, Research, and Evaluation (AQUIRE) committee, UCSDH's Institutional Review Board (IRB), approved this DNP project, the DNP student joined a team with UCSDH's psychiatric certified nurse specialist and

perianesthesia nurse educator in education and implementation of suicide screening for outpatient ECT patients. Before beginning the implementation of suicide screening for perianesthesia, it was imperative to educate the perioperative nurses. This process began by working with information technology (IT) to create the screening in the EHR. The next step was updating an existing, required learning module to include the perioperative setting. The team then created a video explaining the C-SSRS and role-playing various scenarios with the EHR on the screen to demonstrate proper documentation. A flier was also created prior to implementation and posted in the perioperative areas. Additionally, the DNP student attended the unit-based practice council meetings for UCSDH Hillcrest and La Jolla perioperative nurses. At these meetings, the importance of the suicide screening was discussed as well as proper administration and documentation of the C-SSRS.

At this point, the team was ready to go live but due to several administrative setbacks the date got pushed back several times and went live officially on February 28, 2022. The C-SSRS was administered to perianesthesia patients by the nurses in the pre-operative area. In respect for maintaining privacy, the screening was given to patients to complete on paper when the patients did not have a private room. Four weeks of data were collected for this project and analyzed for dissemination. In addition to identifying patients at high risk for suicide, compliance by nurses was also able to be measured. Two high-risk patients were identified and further assessment was completed by the psychiatrist performing the ECT (see Figure 3). In both cases, the provider felt it safe for the patients to discharge. Of the 80 ECT encounters, 60 C-SSRS were completed and 19 were not. The compliance rate was 75.94%, which is not too far off from the goal of 80% compliance in the first month (see Figure 4).

Figure 3*Suicide Risk Level***Figure 4***C-SSRS Compliance*

Of the 60 completed C-SSRS, 56 showed minimal suicide risk, one moderate risk, and two high risk. Other information gathered from data collection included gender, age, and ethnicity. Due to the nature of ECT consisting of several treatments, some of the screenings were done multiple times on the same patients. There was some concern from staff regarding screening patients who have recently screened, however the rationale for screening at each treatment is that psychosocial stressors can change on any given day. There were seven different males who received ECT in the 4-week time period whereas there were 17 different females (See Figure 5). Ethnicity and race are self-identified by patients and fell into the following categories: 68% Non-Hispanic/White, 16% Non-Hispanic/Other/Mixed, 4% Caucasian/White, 4% Non-Hispanic/Black, 4% Other or Mixed race/Hispanic, and 4% Non-Hispanic/Asian (see Figure 6).

Figure 5

Identified Genders of ECT Outpatients

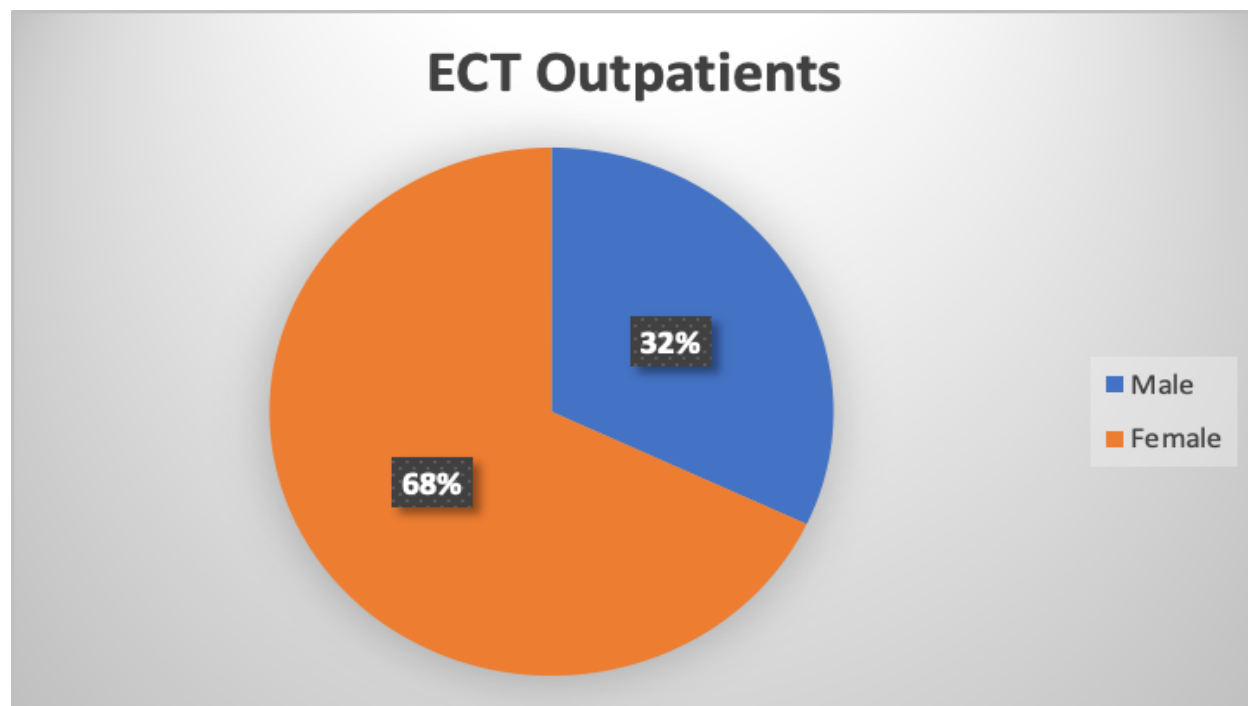
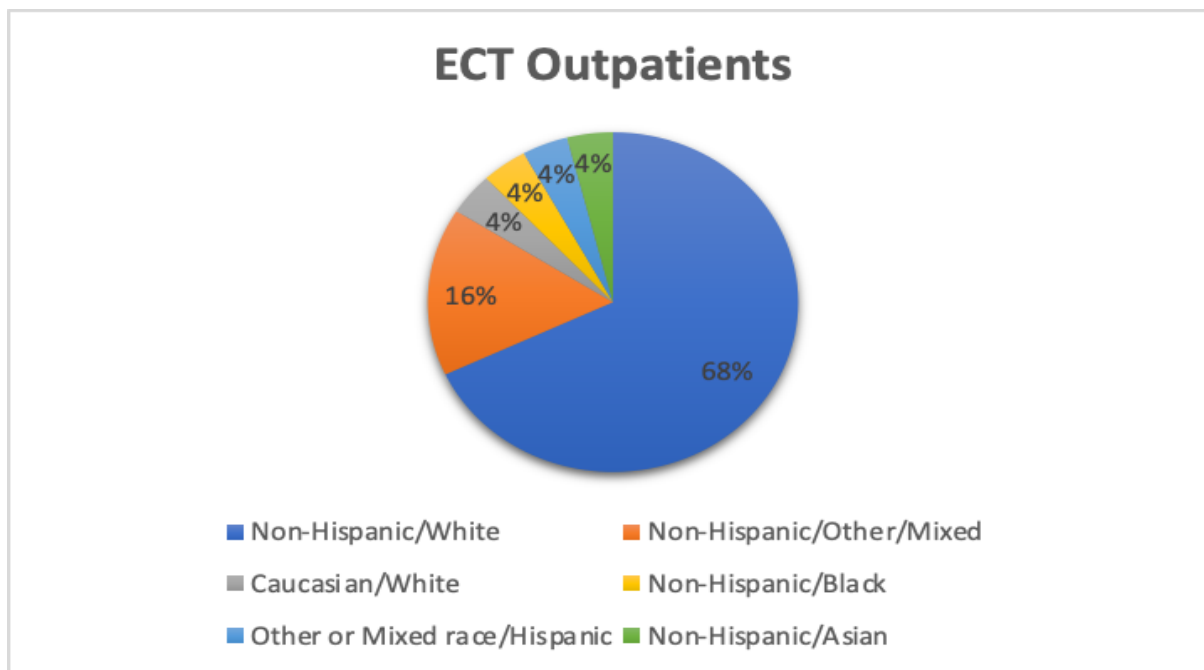


Figure 6*Self-identified Ethnicity & Race of ECT Outpatients***Cost-Benefit Analysis**

There is technically no cost for implementation of this DNP project as it was mandated by the senior director of perianesthesia to implement the suicide screening. All time spent on implementation was during normal working hours for the perianesthesia educator and psychiatric clinical nurse specialist. DNP student time is of no cost. No fiscal savings can be identified but averted healthcare costs can be predicted. The cost of one suicide is \$1,329,553 which includes medical and indirect economic costs (Shepard et al., 2016). Based on the calculations of Shepard et al. (2016), the medical costs for one suicide in 2013 was \$40,924.45. This number is likely significantly higher now.

It is difficult to identify a clinical cost benefit analysis of suicide screening. No one can truly put a price on a life. The important piece to remember is the purpose of suicide screening is

to have adequate resources and referrals for a high-risk patient. Overall, the organization is able to save time and money, improve quality, and improve patient experience.

Some other non-fiscal benefits include upholding the reputation of UCSDH as the number one health care system in San Diego and fifth in all of California. The mission of UCSDH is, “to deliver outstanding patient care through commitment to the community, groundbreaking research, and inspired teaching” (UCSDH, 2022). The vision is, “to create a healthier world- one life at a time- through new science, new medicine, and new cures” (UCSDH, 2022). By identifying patients at high risk for suicide and offering the treatment that they need, UCSDH is serving the community by saving one life at a time.

Discussion, Challenges, and Implications

Several challenges arose throughout this project process the DNP student did not anticipate. UCSDH takes patient privacy very seriously, therefore the IRB is particularly rigorous. The psychiatric clinical nurse specialist at UCSDH was an obvious choice for clinical mentorship but the DNP student required a mentor with a doctoral degree as well. The initial doctorate mentor had some differences of opinion with the DNP student and withdrew from the role. Because of the near sentinel event of self-harm in perianesthesia, an opportunity arose. The doctorate nurse educator of perianesthesia welcomed assistance in the undertaking of the policy change.

The timing of the implementation was also a challenge. The problem was first identified in early September 2021 and it was not until February 28th, 2022 that it was finally implemented. Some setbacks included getting administrative approval of the policy change. The policy was drafted in early October 2021 and was not approved until the following month.

Getting ACQUIRE IRB approval was also delayed due to the holidays and the committee meeting less frequently.

The screening is effective in identifying suicide risk. The area for improvement is provision of adequate resources. The DNP student compiled a list of resources including the access and crisis line phone number, the suicide prevention line phone number, and locations of walk-in mental health clinics. The plan is to have an option to incorporate these resources into the EMR for inclusion in the discharge summary given to patients upon discharge.

Implementation of the C-SSRS at UCSDH Hillcrest ECT and other procedures and surgeries was considered a success as high-risk patients were identified. This project will be implemented further at the UCSDH La Jolla perianesthesia departments at the Sulpizio Cardiovascular Center, the Koman Family Outpatient Center, and Jacobs Medical Center. The hope is to identify patients without a documented mental health diagnosis at risk for suicide who may have otherwise been missed.

Suicide prevention options with the best evidence for effectiveness include educating providers in non-psychiatric setting on identifying risk factors for depression, educating high school and college students about mental health, means restriction, and pre-discharge education and post-discharge follow-up (Mann et al., 2021). A social worker assigned to perianesthesia patients would be of great benefit for patients who are at risk for suicide. Ideally, patients with risk of suicide would have a mental health appointment scheduled before discharge. Having a nurse call to follow-up with patients to ensure appointments are scheduled and attended would also be of great benefit. Suicide is considered a high-risk, low-frequency event so a consideration could be to incorporate the perianesthesia department with an inpatient unit that has an assigned case manager and social worker. These are options to consider in further evidence-based change

projects.

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