

Utilization of a Suicide Screening Tool to Increase Suicide Screening in Adults in the
Emergency Department

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Abstract

Depression is a common and treatable illness characterized by cognitive and physical dysfunction (Centers for Disease Control and Prevention [CDC], 2018). It is a leading cause of disability and may potentially lead to suicide (Friedrich, 2017). Unfortunately, depression seems to remain a stigma, which can possibly lead to poor prognosis. Thus, according to the U.S. Preventative Services Task Force (USPSF), it is strongly recommended that screening for depression and suicide be enabled, especially in those facilities who possess the appropriate resources (2016). Facilities available may include physician offices, clinics, urgent care centers, and emergency departments (EDs). Unfortunately, not all facilities routinely screen for depression. Several EDs lack the proper tools necessary to promptly identify those at risk for depression and suicide (The Joint Commission [TJC], 2016). This may be due to a variety of issues including inadequate regulations, outdated policies, insufficient staff training, and poor integration with other health settings in the community (Agency for Healthcare Research and Quality [AHRQ], 2016). To address this issue, it is vital to ensure health care providers in the emergency room are actively screening all individuals for mental health illness, specifically depression and suicide.

Introduction

Depression is a serious mental illness, affecting millions of people worldwide (CDC, 2018). It is the leading cause of disability in the United States (US) and results in approximately 400 million disability days per year (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Depression is more prevalent than cancer, coronary artery disease, and HIV/AIDS in the US yet it does not receive the same attention (American Foundation for Suicide Prevention, 2019). Less than one-half of patients who are depressed receive treatment, and untreated depression may lead to suicide (Coshal, Saunders, Matorin, & Shah, 2017). Thus, mental health has become a topic of major concern; so much so that prevention and early detection of mental illness is one of the Healthy People 2020 initiatives (U.S. Department of Health and Human Services, 2019). It is crucial that screening and preventative services be initiated to better detect depression, with intentions to improve mental health treatment and decrease rates of suicide.

Background and Significance

The Link Between Depression and Suicide

Depression can affect anyone at any time. About 1 out of every 6 adults will have depression at some point in their life, affecting about 16 million American adults every year (CDC, 2018). The prevalence of depression is compounded if the person also suffers from a comorbidity (Egede, Bishu, Walker, & Dismuke, 2016). Depression is strongly correlated to the risk and occurrence of diabetes, hypertension, stroke, heart disease, and cancer (U.S. Department of Health and Human Services, 2019).

Depression also prevails as a major risk factor for suicide (Turecki & Brent, 2016). Those with depression have a fivefold increase of having suicidal thoughts and behaviors (Shapero et al., 2019). In fact, current studies show that the most significant cause of unnatural mortality is due to

depression (30%), followed by substance abuse (18%) and schizophrenia (14%) (Bachmann, 2018). In the US, more than 44,000 people die each year by suicide, making it the 10th leading cause of death (CDC, 2018). Suicide is the second leading cause of death in individuals ages 15-29 (World Health Organization [WHO], 2018). Thus, left untreated, depression can lead to a host of serious physical and mental health complications as well as possible mortality.

Economic Impact of Depression and Suicide

Depression can negatively impact healthcare costs, placing a financial strain on US spending. The total economic burden of depression accounts for about \$250 billion dollars per year (Evans-Lacko & Knapp, 2016). Roughly 45-50% of these costs contribute to direct medical expenditures, including medical services and pharmacy expenses (American Psychiatric Association [APA], 2019). Another major contributive factor for increased costs includes loss of work productivity (Van Hal, 2015). Depression-related presenteeism and absenteeism account for up to 80% of lost productive time, costing the US over \$35 billion dollars a year (Cocker, Sanderson, & LaMontagne, 2017).

Suicide also poses as a threat to economic and healthcare expenditures (Madsen, Eddleston, Hansen, & Konradsen, 2017). In 2013, the national cost of suicide and suicidal injuries accounted for roughly \$58 billion dollars; most of the cost (97%) was due to loss of productivity (Shepard, Gurewich, Lwin, Reed, & Silverman, 2016). This amount has increased over the years, for suicide now costs society about \$70 billion a year in medical and work-loss costs (CDC, 2018). Thus, both medical expenditures and productivity costs in relation to depression and suicide place a significant economic burden on individual and national healthcare spending.

Importance of Recognition

Aside from these concerns, there remains a large gap between early and effective recognition of depressive disorders, specifically in emergency rooms. Approximately 20% of people in the US seek health care at the emergency room (CDC, 2016). Of all visits, 1 in 8 involve mental and substance use disorders (Weiss, Barrett, Heslin, & Stocks, 2016). Although people come to the hospital to seek treatment for depression and suicide, insufficient use of proper screening tools have resulted in adverse clinical outcomes (TJC, 2016). According to TJC, suicides that occur in hospitals remain the fourth most frequently reported sentinel event (Horowitz, Boudreaux, Schoenbaum, Pao, & Bridge, 2018). In addition, 1 in 5 people who die from suicide visited a hospital within the four weeks prior to their death (TJC, 2014). Given these statistics, emergency rooms have enormous potential to prevent suicide. It is crucial that healthcare providers in the ED utilize the appropriate resources to effectively screen and treat those with depression and suicide ideation.

Needs Assessment

A National Attempt

Due to the detrimental effects of depression, aggressive screening and prevention should be implemented on a national, state, and local level. Depression affects more than 300 million people worldwide and every year, approximately one million people die from suicide (WHO, 2018). Thus, the entire population should be targeted, regardless of whether individuals are at risk. The WHO has created a comprehensive action plan for mental health, and one of the main objectives is to enforce strategies for promotion and prevention in mental health disease (WHO, 2018). At an international level, it is vital to dispel stigma regarding mental disorders, encourage help-seeking behaviors and provide education about early warning signs of depression and suicide.

State Level Efforts

New Jersey (NJ) formed the Division of Mental Health and Addiction Services in 2011 in order to provide early intervention, treatment, education, and recovery services for those individuals suffering from mental illness and/or addiction (State of New Jersey Department of Human Services, 2014). Unfortunately, depression rates continue to increase; between 2013 and 2016 depression rose 33% (Lardieri, 2018). However, suicide rates decreased for the first time since 2011, from 9.7 per 100,000 in 2015 to 8.4 per 100,000 in 2016 (State of New Jersey Department of Human Services, 2014). Rates of suicide in NJ are also lower compared to the national average. An average of 3.6% of all adults ages 18 and older had serious thoughts of suicide, compared to the US average of 3.9% (National Institute of Mental Health [NIH], 2018). While the suicide rates in NJ are among the lowest in the US, suicide remains a significant cause of preventable mortality, thus, screening should be vigorously enforced in preventing suicide and depression.

Local Level Attempts

Monmouth County. An academic, level 2 trauma hospital ED in Central NJ previously did not have a standardized depression and suicide screening tool. Although the reasoning for this was unknown, this setting has the capability and appropriate resources accessible for effective screening. There are strong, influential stakeholders that are willing to partake in practice change to better patient outcomes and quality care. There also resides a crisis unit which consists of psychiatric nurses, mental health screeners, and psychiatrists. The presence of the crisis team in the ED is superior for they actively partake in the patient's care once medically cleared by the physician. The team works with the patients, family members, and healthcare providers to develop

a plan suitable for the patient to better attend to their mental illness. They also provide outpatient resources and referrals to foster continuance of care.

There are several potential barriers that may have inhibited the initiation of a suicide screening instrument in this ED. Not everyone is equipped in handling change which may cause some staff members to be resistant to accepting a new process. Some may believe that mental health is not a “true” medical disorder (Trautmann, Rehm, & Wittchen, 2016), causing aversion to efficiently utilize a screening tool. To relieve the consequences of stigmatism and opposition to change, it is vital to define the need for change and provide education and evidence-based practice guidelines to better facilitate the process.

Overcrowding may be another possible barrier. This hospital experiences challenges with in-patient flow, partly due to the remarkable volume of patients that are seen and admitted for further evaluation. A rise in inpatient psychiatric referrals could potentiate an even longer stay at the hospital. This may unwittingly abate patient-flow and further the issue of overcrowding in the emergency room. However, the risk of under-detecting and inadequately treating depression and suicide may lead to greater adverse patient outcomes and possible death.

Middlesex County. New Brunswick is a town in Middlesex County; it is poorer than most towns in the county. Approximately 26% of New Brunswick residents suffer from mental illness yet only 8% of the residents in the rest of the county reported mental health conditions (Carrier Clinic, 2016). An academic medical center in Central NJ, a healthcare company and the City of New Brunswick formed a partnership to promote a “Healthier New Brunswick” to address mental health (Carrier Clinic, 2016). A community health needs assessment revealed lack of trained healthcare professionals in the following areas: cultural competency, mental health, substance abuse, domestic violence, and developmental disabilities (Carrier Clinic, 2016). An academic

medical center in Central NJ reviewed the results of the qualitative study and found that depression, anxiety, bi-polar disorder, and post-traumatic stress disorder (PTSD) were found to be the biggest indicators of poorer mental health; indicating the need for early detection and intervention (Carrier Clinic, 2016).

Several factors may contribute to its under usage. RNs may feel that the suicide risk assessment tool is less of a priority than other tasks. Other barriers include the challenge of delivering high quality care in a timely manner, the surge in demand at any given time, and limited hospital resources (Jarvis, 2016). The demand for emergent patient care is increasing causing a strain on hospital staff. Completing the suicide risk assessment tool may seem less important than a patient's physical needs. Ensuring every patient is screened for suicide will promote patient safety, and better patient outcomes.

Problem Statement

Depression is recognized as a critical public health issue, for it is one of the leading causes of injury and disease for people nationwide (NIH, 2018). According to the CDC, by 2020, depression will be the second most prevalent cause of disability in the world, subsequent to heart disease (2018). Not only does it cause disability, but it can also lead to disease and possibly even death (Boudreaux et al., 2016). Healthcare settings, including hospitals, play a key role in preventing suicide through suicide risk screening. However, not all hospitals actively screen for suicide or depression. Another issue lies in the existence of stigma, both societal and individual, which can impair a person's comfort with acknowledging and sharing their mental health concerns (King, Horwitz, Czyz, & Lindsay, 2017). Stigma may also affect healthcare staff compliance to effectively screen all patients.

An ED in an acute care hospital in Central NJ did not have a screening instrument to identify those patients with depression and suicide. This was concerning for in 2017, this hospital ranked the highest among all in-network hospitals in in-patient suicides. In 2018, of the 95,000 patients who visited this hospital, only 3,000 patients were diagnosed with a mental health illness. Unfortunately, this number may be misleading in the absence of a proper screening tool and may not represent the actual number of patients who were experiencing depression and suicidal ideation.

At another ED in an acute care hospital in Central NJ, a screening tool was already mandated as part of the initial nursing assessment. However, not all patient records displayed a screening score; meaning, nurses were not properly documenting, or they may not have been actively screening. In fact, the compliance rate of documenting suicide screening scores was only 86% in 2017. Thus, patients who were experiencing depression or suicide may have gone unrecognized and left untreated.

Clinical Question

For emergency room patients (P), does utilizing a depression and suicide screening tool (I), compared to not utilizing a screening instrument (C), increase proper diagnosis and treatment as well as improve nursing perception of suicide, affecting screening compliance (O).

Aims and Objectives

Aim: To foster increased awareness and early detection of depression and suicide risk.

- To recognize the importance of early detection of depression and suicide, including prompt treatment and focused care.
- To critically review the medical literature regarding new evidence based clinical trials and its implication on current screening and treatment guidelines of depression and suicide.

- To increase detection of depression and suicide by implementing a universal screening tool for all patients seen in the ED.
- To provide education to the staff regarding the new suicide screening tool that will be implemented as part of the nursing assessment.
- To dispel any stigma regarding mental health illness to increase screening effectiveness.
- To evaluate (retrospectively and prospectively) compliance of referrals and treatment plans for patients that screen positive for depression/suicide risk.
- To improve patient care outcomes through effective communication with other health care professionals and partnerships through community resources.
- To decrease the overall consequences of depression and suicide, leading to better quality of life and patient safety.
- To evaluate the effectiveness of suicide assessment tools.
- To re-educate the staff regarding the importance of completing the suicide risk assessment tool.

Review of Literature

A literature review was conducted to examine four integral concerns: (1) best practices for depression and suicide screening based on current evidence; (2) effective utilization of screening mechanisms for depression and suicide in the ED; (3) contemporary recommendations to guide successful use of screening instruments; (4) accountability and validity of available screening tools. These key points will be assessed to determine whether screening for depression and suicide in the ED will better identify those at risk and validate the critical importance of ensuring clinician compliance when treating adult patients at risk for suicide.

The following databases were searched: PubMed, CINAHL, EBSCOhost and the Cochrane Library. A total of 67 potential sources were identified using a variety of search term combinations. These included “diagnosis of mental depression,” “behavioral health emergency,” “depression screening,” “emergency service,” “mental health emergency,” and “suicide ideation”. The same key terms were applied to CINAHL with additional search terms added including “assessment” and “screening,” with the filters “and” and “or”. The topics searched encompassed “suicide,” “depression,” “suicidal ideation,” “suicide assessment,” and “suicide scales and/or tools”. Searches were limited to the English language and articles were only selected between the years 2015–2019. Refer to Appendix A for the table of evidence and appraisals.

Depression and Suicide: Why Screen?

Screening patients in the emergency room for depression and suicide is imperative to reduce suicide rates and avoid patient harm (Miller et al., 2017). According to the CDC, approximately 50% of Americans are diagnosed with a mental disorder (2018). Those who suffer from mental health illness may utilize emergency services. In fact, in the US, roughly one in eight visits to the ED involves mental and substance abuse disorders (Weiss, Barrett, Heslin, & Stocks, 2016). Thus, EDs are a common treatment setting for psychiatric emergencies.

Those with severe depression in association with feelings of hopelessness and stress are at increased risk for suicide or self-harm (Kleiman, Liu, & Riskind, 2014). Coshal, Saunders, Matorin, and Shah (2017) found that more than 90% of people who have committed suicide have had a major psychiatric disorder. Suicidal ideation is also increased when a patient is depressed and struggling with psychotic symptoms (Overholser, Athey, Beale, Dieter, & Stockmeier, 2018). One study showed that depressed psychotic cases were more vulnerable to suicide (62%) compared to the depressed non-psychotic patients (37%) (Overholser et al., 2018). Unfortunately, depression

is often overlooked especially for minorities and immigrants (Schaeffer & Jolles, 2019). The fourth least reported measure on the Medicaid Adult Core Set is screening for depression and follow-up planning (Schaeffer & Jolles, 2019). Thus, it is vital to initiate a screening tool designated for both depression and suicide.

Suicide is the most threatening result of mental illness and is noted to be the 10th leading cause of death in the US (CDC, 2018). In 2015, there were 41,149 deaths by suicide in the US, which averages to be 117 suicides per day (Coshal et al., 2017). Those who experience suicidal ideation will go to the ED to seek help (Bowers et al., 2017). In 2013, there were 903,400 emergency room visits in the US related to suicidal ideation (Bower et al., 2018). According to TJC, one in five people who die from suicide visited a hospital within the four weeks prior to their death (2014). These statistics support the need for depression and suicide screening in the ED to decrease the risk for suicide.

Although suicide and depression are closely linked, suicide ideation is more of a substantial predictor of suicide attempt compared to depression status (Wakefield & Schmitz, 2014). Thus, the focus of this project is to: (a) implement a suicide screening tool in an ED that does not currently have a screening instrument in place; (b) enforce education and analyze nurses' compliance with the utilization of the current suicide screening tool present in another ED. Studies show universal screening approaches demonstrate potential for conceivably managing suicide risk in the emergency room (Petrik, Betz, Olson-Madden, Davidson, & Allen, 2017). For those individuals who display an increased risk of self-harm and suicide, they can be promptly treated and referred to psychiatric programs if necessary. This will reinforce patient safety and ensure quality of life.

Screening Recommendations

Healthcare providers play a crucial role in detecting and screening for suicide. According to TJC, suicide screening is required in various healthcare settings; most importantly, screening should be conducted in EDs and physician offices (Emergency Nurses Association [ENA], 2017). Screening will be successful in these settings because these facilities acquire trained health care professionals that have the ability and decision-making expertise to identify suicidal behavior (King et al., 2017).

EDs possess additional resources that are necessary in fostering prompt treatment and adequate referrals (ENA, 2018). For example, some EDs may have a specific team incorporating nurses, physicians, and psychiatric professionals to care for patients with mental illness and suicide ideation (Miller et al., 2017). Thus, healthcare providers in EDs prevail as the forefront in detecting, assessing, and treating those with a suicide risk.

There are several vital steps to ensure appropriate use of screening tools in the ED. TJC discusses key recommendations regarding effective screening in healthcare facilities, including: 1) review the personal and family history for suicide risk factors; 2) screen all patients no matter what the chief complaint is; 3) utilize screening tools that are brief, standardized, and based on evidence; 4) intervene when assessment results are positive, providing appropriate treatment (TJC, 2016). These specific recommendations can guide healthcare professionals in the screening process to adequately identify those at risk and implement an intervention if needed.

Establishing the appropriate screening method in a given setting may be challenging. In order to maximize both the “goodness of fit” and efficacy of screening measures, Boudreaux and Horowitz (2014) discuss current recommendations that are considerable in achieving screening effectiveness. These specific guidelines include: 1) foundation, scope of practice, and decision-

making abilities must be examined and used to choose proper screening tools that fit a specific setting; 2) technology should be employed to support screening; and 3) current evidence-based research must be appraised to determine the best screening methods available and implement them into practice (Boudreaux & Horowitz, 2014).

EDs acquire the infrastructure and health care personnel appropriate to foster screening tools (Zaleski et al., 2018). They also may possess the technology that makes screening more feasible. According to Boudreaux and Horowitz, electronic health records (EHRs) are a vital tool in improving screening and patient safety (2014). EHRs have many advantages; they can be programmed to prompt suicide risk screening, alert high-risk individuals, guide further risk assessment, and assist clinical interventions such as treatment or referral to outpatient resources (Roaten, Johnson, Genzel, Khan, & North, 2018). In addition to promoting patient care, this would improve standardization in assessment and enhance the integration of data on suicide from diverse healthcare settings.

Screening Tools Appropriate for the ED

TJC requires suicide screening and assessment but does not specify which tool to use (Betz & Boudreaux, 2016). Available screening tools that may be used in an emergency room setting include, but are not limited to: the Beck Scale for Suicide Ideation (BSS), the Suicide Probability Scale (SPS), the Columbia-Suicide Severity Rating Scale (C-SSRS), the Patient Safety Screener Scale (PSS), and the Patient Health Questionnaire (PHQ-9) (Erford, Jackson, Bardhoshi, Duncan, & Atalway, 2018; Na et al., 2018; TJC, 2016). The BSS, SPS, and PHQ-9 are all self-reported suicide assessment tools whereas, the questions on the C-SSRS and PSS tools are read aloud to the patient (Erford et al., 2018; Na et al., 2016).

The BSS was standardized on a group of 50 inpatients and 55 outpatients from a suburban general hospital; Cronbach's coefficient for the subgroups were .90 and .87 respectively (Erford et al., 2018). In another study, seven articles with a combined sample size of 1,059 participants had a Cronbach's coefficient equal to .91 (Erford et al., 2018). These findings validated the reliability of the BSS tool. Another tool often used to identify risk of suicide is the SPS tool. This tool was standardized on a sample of more than 1,000 patients and had an internal consistency equal to .93 (Erford et al., 2018). The authors have found consistent convergent correlations with other various tools measuring suicidal ideation and support the validity of the SPS tool (Erford et al., 2018).

The C-SSRS tool was developed to measure the severity of suicidal ideation and fatality of suicide attempts (King et al., 2017). According to one study, concurrent validity comparison showed a strong correlation between the BSS and the C-SSRS, $r = .52$ (Erford et al., 2018). In comparison, Viguera, Milano, Ralston, Thompson, Griffith, Baldessarini, and Katzamn (2015) reported inconsistent findings in tests of interrater reliability. Chang and Tan (2015) also report that although this tool exhibits some evidence of predictive validity for suicidal behavior, it poorly represents within-ED adverse events and admission to psychiatric facilities.

The PHQ-9 includes the Diagnostic and Statistical Manual of Mental Disorders (DSMIV) criteria to screen, diagnose, monitor, and measure severity of suicide (TJC, 2016).

Manea, Gilbody, and McMillan (2015) performed a systematic review of 27 studies and found the algorithm scoring method of the tool to be valid; although, due to low sensitivity, patients suffering from major depression may be underreported. In another study, Na et al., (2018) identified higher rates of false positives for the PHQ-9 when compared to the C-SSRS. Similar findings were found by Mullinax, Chalmers, Brennan, Wilke, Nordstrom, and Wilson (2018) who have argued that although the tool is a good predictor of suicide attempts, it demonstrates a poor sensitivity for

patient disposition in the ED. The PHQ-9 is also very lengthy and time consuming, thus, it may not be the best scale to use in a busy ED (Rathore et al., 2014). This scale may be more appropriate in primary care settings (King et al., 2017).

The Patient Safety Screener-3 (PSS-3) incorporates three questions that screen for depressed mood, suicidal thoughts, and history of suicide attempt within the past 6 months (King et al., 2017). This screening scale shows superior validity and is designed specifically for ED settings (Petrik et al., 2017). Boudreaux and colleagues (2016) examined whether the PSS-3 scale was feasible and effective in improving suicide risk detection in the ED. According to their study, increased screening with this scale led to nearly twice as many patients being identified as having suicide risk (Boudreaux et al., 2016). There was also an improved notation of suicide risk screening, for documentation of any past or current self-harm ideation nearly doubled over the course of the study from 2.9% to 5.7% (Boudreaux et al., 2016). Due to its feasibility and credibility, the PSS-3 seems to be an appropriate choice for screening for suicide among patients in the emergency room.

Barriers Regarding the Utilization of Screening Tools

Despite the presence of suicide prevention efforts, there remain several challenges that revolve around the use of suicide screening tools in the emergency room. A nationwide study proposed that almost half of US hospitals don't routinely screen for suicide (Centi, Heinecke, & McInerney, 2018). One reason for this may be that ED providers do not regularly screen for suicide unless it is in the chief complaint (ENA, 2017). This suggests that there may be lack of knowledge of proper screening, unavailable screening tools, or other competing care priorities (Petrick et al., 2017). As per the current recommendations mentioned earlier, it is vital to screen all patients without regard to their chief complaint.

One study found that 12% of patients who reported moderate to severe depression and suicidal ideation came to the ED with a different, medical complaint (Abar, Holub, Lee, DeRienzo, Nobay, & Kuehl, 2017). The most common complaints from these patients included chest pain and abdominal pain (Abar et al., 2017). Another US study found that in the four weeks prior to death, 13% of the patients who committed suicide visited the ED for another medical concern (Centi et al., 2018). Thus, it is necessary to recognize that suicide ideation may be present in those visiting the ED for non-suicide related concerns. Routine screening for all patients is essential and could be effective in reducing rates of suicide.

Overcrowding in the emergency room potentiates as another challenge for ineffective screening. ED overcrowding prevails when patient demand for emergency services exceeds the capacity and resources available (Di Somma, Paladino, Vaughan, Lalle, Magrini, & Magnanti, 2015). With a great influx of patients, time spent with a patient may be constricted. In addition, ED providers may be working with multiple patients, family members, and other providers simultaneously (Petrick, 2014). As a result, time spent caring and treating patients may be interrupted. The insistence and stress of allocating prompt care to high volumes of patients may likely prevent the incorporation of a preventative health screening tool for suicide risk.

Another barrier to effective screening involves the stigma and lack of acknowledgment regarding the importance of utilizing suicide prevention tools. One study displayed that healthcare providers saw screening tools as having the potential to slow down patient care (Betz et al., 2015). However, after implementation of a suicide screening tool in the ED, a substantial number of providers proclaimed that time spent administering a tool did not affect timely care (Betz et al., 2015). In fact, more than half of ED providers conducted secondary risk assessments for those

reporting suicide ideation (Betz et al., 2015). Thus, education is vital to affect ED culture by raising awareness of suicide prevalence and the importance of performing regular screening.

Lack of sufficient evidence-based research regarding the validity of available screening instruments may pose as another challenge (Boudreaux & Horowitz, 2014). According to Chang and Tan (2015), no current screening tool can significantly foresee near-term outcomes according to contemporary research. In addition, existing screening tools neglect to distinguish those patients of highest risk of suicide (Chang & Tan, 2015). Although many screening tools exhibit poor sensitivity for suicide (Petrik, 2014), they may still conceivably have clinical usefulness in conjunction with healthcare providers' assessment to safely treat or discharge patients from the ED (Mullinax et al., 2018). For this reason, and because the benefits of utilizing a screening tool outweighs the risks, preventative services should be established.

Conclusion

To summarize, this review of literature describes best practice for assessing suicide risk behavior and implementing a suicidal risk screening tool in the ED. To be successful, screening should be implemented to assess all patients who seek care, independent of the chief complaint. Healthcare providers in the ED -should be well-versed in the current research and choose the appropriate instrument that fits their clinical setting. Following screening, a risk assessment should be conducted to guide the decision of whether to admit the patient for further treatment or refer to out-patient resources. Although suicide screening instruments may be a vital component in the assessment of ED patients, more research is needed to test the validity of such screening tools available.

Theoretical Framework

The Plan-Do-Study-Act (PDSA) not only supported the development of this project but also provided the model for learning and change for the project implementation (Appendix B). The key components of this model are: 1) Plan, 2) Do, 3) Study, and 4) Act (Donnelly & Kirk, 2015). This framework is often used to help improve the quality of care and is conducted in four iterative cycles; making changes and improvements as needed along the way (Taylor, McNicholas, Nicolay, Darzi, Bell, & Reed, 2014).

The first step is Plan. This step asks three key questions: 1) What are you trying to achieve; 2) What is the problem; and 3) How do you know it is a problem (Donnelly & Kirk, 2015). Additional considerations include establishing a goal that is attainable, relevant, and feasible (Bollegala et al., 2016). There were two issues that needed to be addressed: one hospital lacked the possession of a suicide screening tool and the other hospital had poor screening compliance. Thus, the aim of this DNP project was to increase the number of suicide risk screenings, leading to more prompt treatment and an overall decrease in suicide rates. Because these two hospitals encounter a significant number of patients who suffer from mental illness, it seemed appropriate to ensure early detection and prevention be facilitated in these two settings.

The second step involves executing the plan. Correspondingly, quantitative and qualitative data are collected to document the findings and assess change (Institute for Health Care Improvement, 2019). At one hospital, a suicide screening instrument was implemented. The other hospital had a screening tool, but nurses were reeducated to reinforce the importance of consistently screening patients. Prospective data was collected to determine if using the screening tool at both sites increased recognition of suicidal behavior. Retrospective data was also collected and compared to prospective results to determine if the screening tool and education were

effective. Nursing stigma towards suicide was also studied. A pretest and posttest survey were conducted, and the results were compared.

The next step is called Study. In this step, the data collected is analyzed and processes are observed and documented. The key questions in this step are as follows: 1) Was the outcome close to what was predicted; 2) Did it work out as planned; and 3) What were the lessons learned (Donnelly & Kirk, 2015). Data for this study was analyzed using Excel and SPSS Data Analysis Software. Correlations were made to determine if increased screening led to greater treatment and referrals. Stigma of suicide was also analyzed to establish whether it affected screening compliance. It was anticipated that utilizing a suicide screening instrument would lead to an increase in psychiatric referrals and that education would decrease negative attitudes towards those who commit suicide. The last step in the cycle is Act. This step ensures the solution implemented is sustainable (Donnelly & Kirk, 2015). The 'Act' of this study was based on the results obtained from the chart review data and nursing survey data in order to determine if education and the implementation of a screening tool increased risk detection and treatment.

Methodology

This project was a quality improvement study that used a quasi-experimental approach, involving prospective and retrospective chart-review data. Data was collected and analyzed to determine the effectiveness of the implemented suicide screening tool in association with prompt detection, diagnosis, treatment, and appropriate referrals. Behavioral health stigma was also evaluated among ED nurses using pre and post surveys to determine the relationship between nursing perception of suicide and effective screening.

Setting

The project was conducted at two adult EDs at two large trauma, academic medical hospitals in Central NJ. Patients who utilize these emergency rooms come from a variety of cultural backgrounds including Caucasians, African Americans, Hispanics, Hasidic Jews, and Asians.

Middlesex County Hospital: This facility is a level 1 trauma center in an urban setting in Central NJ. There are more than 95,000 ED and trauma patient encounters per year. In 2018, the number of patients diagnosed with mental health conditions were approximately 2,400.

Monmouth County Hospital: This facility is a level 2 trauma center in a suburban setting in Central NJ. This ED encounters a significant number of patients, for the annual ED census ranges from 85,000 to 95,000 patients yearly. In 2018, there were 6,000 patients diagnosed with a mental health illness.

Study Population

This study included all patients that came to the adult ED. Inclusion criteria included adult patients, ages 22 and older. Exclusion criteria included patients 21 years-old and younger, patients with an acuity level of 1, severe trauma, and acute intoxication. To determine an effective sample size for this study, with a 5% margin of error and a 95% confidence level, the Raosoft, Inc. (2004) calculator was used. Both hospitals see an average of 95,000 patients, thus, the desired sample size for each setting was 383 patients.

This project also included a population of nurses who worked in the ED. Inclusion criteria included nurses who worked full-time, part-time, and pier-diem. Exclusion criteria included nurses who were on medical leave, agency nurses, and nurses who were floated to the ED. Middlesex county ED employed 86 full-time, part-time, and pier-diem nurses. Using the same software, the sample size needed was 71 nurses. The total number of nurses who worked full-time, part-time,

and per-diem in the Monmouth county ED was 55 nurses. Thus, the desired sample size was a minimum of 49 nurses.

Subject Recruitment

Recruitment of patients was not necessary in this study. All patients were screened except for those who met the exclusion criteria. Suicide screening is a standard of care requirement at both settings; thus, it was mandatory that all nurses screen patients. In the Middlesex county ED, nurses were recruited to join educational meetings to highlight the importance of screening for suicide. Nurses were recruited via email (Appendix C), and at monthly ED staff meetings. In the Monmouth County ED, nurses were recruited to join the mandatory educational meetings to learn about the new suicide screening tool being implemented. Recruitment was advocated via flyers (Appendix D) displayed in the nursing lounge, locker room, and ED conference room. The emails and flyers contained information regarding the educational meetings as well as contact information for those who had additional questions or concerns. At these educational meetings, at both hospitals, nurses were invited to participate in a survey regarding perception of suicide. Information regarding these surveys were also included in the emails and flyers at both settings. This survey was distributed before and after the study. The post-survey was administered via email and nurses were asked to voluntarily complete it and send it back within two days.

Consent Procedure

A waiver of consent was requested to obtain patient data via a retrospective and prospective chart review in both settings. The reasoning for this was because the patients were not actively participating in this study. Only demographic data, screening scores, and referral plans were collected and analyzed for the purposes of this project; thus, it was not feasible to consent ED patients. Nurses were consented to partake in the pre and post survey. The consent form was

attached to the survey and distributed at the educational meetings that were held in the ED conference room at both sites. Consent forms were discussed prior to distribution and opportunities were made for further questioning. Participants were informed that survey completion was voluntary and did not impact employment. Refer to Appendix E for the Middlesex county facility consent forms and Appendix F for the Monmouth county facility consent forms.

Risks or Harms

This study posed minimal risk to those who were involved. There was no more than minimal risk to a person participating in this research where the magnitude of harm or discomfort anticipated were not greater, in and of themselves, than those ordinarily encountered in daily life. Nurses involved in the study may have experienced mild discomfort from the questions included in the survey. These questions may have provoked discomfort or possibly elicited thoughts of previous unsatisfactory experiences. To ensure comfort, participants were reminded that they can cease participation at any time during the study.

Subject Costs and Compensation

There was no cost to the patients as they were not direct participants. There was also no cost to the nurses to attend the meetings and partake in the survey. Nurses did not incur financial compensation for their participation in this study. However, light refreshments were provided at the educational meetings.

Study Interventions

. **Middlesex County:** This project began with a retrospective chart review to determine if all patients were being screened for suicide. Charts were selected if they met the criteria within the established timeframe: December 1st, 2018 through January 1st, 2019. Specific criteria included

the patients' age, gender, chief complaint, screening score, and psychiatric consults/referrals. If a positive screen was obtained, documentation of the intervention was noted.

Educational meetings were conducted at the monthly staff meetings in the ED conference room during November 2019. At this site, it is mandated per hospital protocol to screen all patients in the ED using the Columbia-Suicide Severity Rating Scale (C-SSRS). Thus, the purpose of these meetings was to re-educate nurses regarding the importance of screening using a mental health awareness education program. Information about these meetings were shared via email one month prior to the educational meetings. During this time, an educational handout (Appendix G) was distributed to all nurses and a Health Stream course (Appendix H) was published on the medical center's intranet site.

Nurses from the adult ED were presented with the Stigma of Suicide Scale (SOSS) survey (Appendix I) at the educational meetings. Participation in the survey was optional. ED nurses who wanted to be included in this DNP project needed to complete the required consent form prior to taking the survey. The DNP student provided contact information; email address and cell phone number of both the student and DNP chair member, if the participants had any additional questions.

A prospective chart review was conducted from December 1st, 2019 through January 1st, 2020 to determine if there was an increase in suicide screening. A post-survey (SOSS) (Appendix I) and consent form was administered to the nurses via email in January 2020. Nurses had two days to submit the forms back via email. Data collected was analyzed and results of the surveys were compared pre-and post-study.

Monmouth County: The first step in this project was educating the ED nurses on the new screening tool, the Patient Safety Screener (PSS-3). Flyers were posted to inform nurses about the mandatory educational meetings that were held in the ED conference room coordinated by the ED

nursing director and the DNP student. The flyers also offered contact information of the DNP student and DNP chair (email and phone number) for any additional questions or concerns. Flyers were posted prior to the required meetings so that nurses had enough time to make arrangements to attend. These meetings were mandatory because the suicide screening tool became a new standard of care requirement starting November 2019. They were held three times a week for one week in November 2019 and were scheduled at different allocated time slots to ensure full-staff attendance.

Handouts and a PowerPoint presentation were presented at these meetings to educate the nurses regarding the use of the suicide screening tool. Information concerning the importance of the tool and instructions on how to use the tool and document the results were also provided. Refer to Appendix J for the handout and Appendix K for the PowerPoint presentation. A pre-survey (SOSS) (Appendix I) was distributed at these meetings prior to the PowerPoint presentation. The purpose of the survey was to collect information regarding nursing perception of suicide. Nurses were made aware that these surveys were voluntary and did not impact employment. A consent form was attached to the survey, and nurses were asked to read this form and ask any questions prior to taking the survey

The PSS-3 was put into effect November 2019. The tool was implemented into EPIC, a charting software used by health care providers at this hospital. The initial part of the screening includes three questions that ask about depression and suicide. It populates as a required form to complete in the nursing triage assessment and nurses will document the resulting scores into the electronic chart. A patient saying 'yes' to one of the three questions is considered a positive result and prompts a drop-down of six more questions that the nurse will need to ask. These questions further evaluate suicide ideation, past-hospitalizations, and substance abuse. A 'yes' to one of the

six questions electronically flags the patient, and a 1:1 constant observation order will be automatically placed into the system. The physician will also be able to see in the chart that the patient was flagged and will need to re-evaluate the patient and order a psychiatric consult per hospital protocol.

Prospective data was obtained from the patients' medical record regarding items such as the patients' age, gender, chief complaint, PSS-3 score and psychiatric consults/referrals from December 1st, 2019 to January 1st, 2020. During this time, retrospective data was also obtained from the patients' medical record regarding similar items with the exception of the PSS-3 score. Data was collected from the established timeframe: December 1st, 2018 to January 1st, 2019. Both prospective and retrospective data were gathered and analyzed to determine the effectiveness of the implemented PSS-3 instrument.

A post-survey (SOSS) was administered to the nurses via email in January 2020. The same questions from the pre-survey were used, and the consent form was also attached and required to be completed before participation in the survey. Data collected was analyzed and results of the surveys were compared pre-and post-study.

Outcome Measures

Electronic health records (EHRs) were randomly accessed to retrieve specific patient information needed to measure study results. Approval for using EHRs was obtained from the chief ED nursing director and the site's Institutional Review Board (IRB). A report was generated by the ED nursing director, at both sites, with a list of patient charts. Charts were categorized by chief complaint, so patients who had a complaint of "unconsciousness" were not picked. Those 21 years of age or younger and trauma patients were not included in the list for they are not seen in the main ED. A sequential numbering system was given to each chart selected; starting with the

number one and ending with the recommended sample size for this project. No identifying information was collected. Certain elements from the patient data that were extracted for study purposes included patient demographics, screening scores, psychiatric referrals, and psychiatric admissions (Appendix L). This information was used to display if there was an association between certain patient groups and suicide risk. It was also used to determine whether there was an association between increased suicide screening with increased psychiatric referrals and consults.

Nurses were asked to participate in a suicide stigma survey at the educational meetings to assess nursing perception of suicide. The survey questions were derived from the Stigma of Suicide Scale (SOSS), a tool that is publicly available. This scale comes in two forms; the long form consists of 58 items and the short form has 16 items (Williams, Cero, Gauthier, & Witte, 2018). To decrease the burden on responding to 58 questions, this project used the short form. Each item is rated on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. Higher scores indicate higher levels of stigma towards people with suicidal ideation (Williams et al., 2018). Scores can range from 16 (low stigma) to 80 (high stigma). A score above 65 is considered positive for higher levels of stigma.

The SOSS is argued to provide valid results, with an overall internal consistence of $\alpha = 0.70$ (Stecz, 2019). To examine convergent validity, Batterham and colleagues compared the SOSS to a 78-item version of the suicide opinion questionnaire (SOQ) (Williams et al., 2018). The SOSS-SF stigma had a -0.66 correlation with the SOQ stigma factor, SOSS-SF isolation/ depression had a -0.37 correlation with SOQ isolation, and SOSS-SF glorification/normalization had a -0.35 correlation with SOQ acceptability (Batterham, Callear, & Christensen, 2013).

Project Timeline

Upon completion of the proposal in May 2019, it was submitted for site IRB approval. Both sites' IRB approved the study in July of 2019. The proposal was then submitted for Rutgers IRB approval in July of 2019; approval was obtained in November 2019. The study began in November 2019 following both site and Rutgers IRB approval. Education was the first step in this project and was completed in one week by the end of November. Nurse survey results and retrospective patient data was also collected during this time. At the Monmouth county ED, the suicide screening instrument was implemented into the charting system in November 2019. Prospective patient data was conducted over the course of one month in December 2019. The post nurse survey data was collected within the first week of January 2020 to evaluate any difference in levels of stigma regarding suicide. Data analysis and evaluation of the project was completed over the course of two weeks in January 2020. The final presentation of the project will be displayed in April 2020. Graduation May 2020. The timeline can be found in Appendix M.

Resources Needed

The expenses of this project were the sole responsibility of the DNP students. These costs included the materials needed for recruitment and education, such as flyers and handouts. No research expenses were included in this project. Refer to Appendix N for the anticipated budget.

Evaluation Plan**Data Analysis**

The SOSS survey was scored according to instructions provided by the author of this instrument. Cronbach's alpha was established for this instrument. To determine the statistically significant difference of levels of stigma between the pre- and post-SOSS survey, a paired *t*-test was used with a significance level of $\alpha = 0.05$. Descriptive statistics was used to describe the

demographics of the patient population. A Pearson correlation coefficient was calculated to assess the relationship between the PSS-3 scores and psychiatric referrals for the Monmouth county ED after implementation of the screening instrument. All quantitative data will be analyzed using the statistical software SPSS 13.0.

Data Maintenance/Security

Nursing surveys were kept confidential. There were no names or other identifying information on the survey questionnaires. Surveys were collected and stored within the project site in a locked cabinet, with only the principal investigator and DNP student knowing the lock code. All survey results were entered into Microsoft® Word, Microsoft® Excel software and SPSS statistical software, which were stored in a laptop computer that was password protected.

Data from the patient chart reviews were also collected at the project site, entered into Microsoft® Word, Microsoft® Excel software and SPSS statistical software, and kept in the same password protected laptop. Again, only the principal investigator and DNP student had access to this data. Patient name, date of birth, and medical record number were not collected, thus, there was no link between patient identifier and data.

After completion of the study, aggregate data and consent forms will be transmitted electronically to Rutgers University through the site's learning management system, Canvas. Data will be stored on the Rutgers One Drive with access provided for Kathy Gunkel DNP.

Results

SOSS Survey

A Cronbach's alpha was used to determine the SOSS survey's reliability. Using the total nurse sample size between both settings, the results displayed a high level of internal consistency with a Cronbach alpha of 0.74 (Appendix O). Removal of items "brave", "noble", and "dedicated"

would lead to a small improvement in Cronbach's alpha, thus, future studies may consider deleting these items to create a better internal consistency for this scale.

Monmouth County ED

Nurse Population: A total of thirty-two RNs participated in the study. The average pre-test score from the SOSS survey was 39, indicating a neutral position related to the stigma of suicide. The average post-test score was also 39, demonstrating no difference in results compared to the pre-test. Thus, the level of stigma towards suicide did not change after education and the implementation of the suicide screening tool. The paired *t*-test conducted between the pre- and post-test score provided a statistically non-significant *p* value of 0.57. This indicated there was no significant difference between the pre- and post-tests. Both the pre-test and post-test illustrated that most nurses responded "strongly disagree" to embarrassment (63% pre-test, 57% post-test). Thus, nurses felt that this term was least likely to describe a person who dies by suicide. In contrast, most nurses responded "strongly agree" to lost (28% pre-test, 57% post-test). The data analysis findings of the pre & post test conducted using SPSS can be found in a table format in Appendix P. A bar graph of the findings of the pre & post test data can be found in Appendix Q.

Patient Population: In the Monmouth county ED, one-hundred ninety-one charts were analyzed retrospectively and one-hundred ninety-three charts prospectively. The total sample size included 183 females and 200 males. The average age of patients who visited the ED was 66 years old. The most common chief complaint was chest pain (12%), followed by shortness of breath (11%) and abdominal pain (10%). Retrospectively, of the 191 patients, 20 received a psychiatric consult despite the lack of a suicide screening tool. Of the 20 consults, 12 were admitted for further evaluation and treatment. These admissions mostly consisted of those who had a chief complaint of "crisis". Prospectively, of the 192 patients, 28 received psychiatric consults with 19 of them

being admitted for further evaluation and treatment. The strength of association between the PSS-3 scores and psychiatric referrals was very high ($r = 0.90$) and the correlation coefficient was statistically significant ($P < 0.001$). Thus, there was a strong association between the screening scores and psychiatric referrals. Refer to Appendix R for patient descriptive statistics and Appendix S for correlational findings.

Middlesex County ED

Nurse Population: The total number of RNs who participated in this study was thirty. The average pre-test score from the SOSS survey was 36 and the average post-test score was 35, indicating a lower level of stigma. The paired *t*-test conducted between the pre- and post-test scores provided a statistically significant *p* value of 0.04. These results illustrate a statistical difference between the pre-test and post-test scores. Regarding both the pre- and post-surveys, most nurses responded “strongly disagree” to embarrassment (73% pre-test, 87% post-test) and “strongly agree” to lonely (31% pre-test, 37% post-test). The data analysis findings using SPSS can be found in Appendix T. Refer to Appendix U for the bar graph of both the pre- and post- survey results.

Patient Population: One-hundred ninety-two charts were analyzed retrospectively and prospectively for a sum of 384 patients. The total sample size included 209 females and 175 males. The average age of patients who visited the ED was 55 years old. The most common chief complaint was chest pain (11%), followed by abdominal pain (7%) and shortness of breath (6%). Retrospectively, of the 192 patients, 178 patients were screened, and 14 patients were not screened. Two patients received a psychiatric consult and one was admitted to a psychiatric facility. Suicide ideation was the chief complaint. Prospectively, of the 192 patients, 185 patients were screened, and 7 patients were not screened. Four patients received psychiatric consults with four of them being admitted to a psychiatric facility. There was a strong association between the C-SSRS scores

and psychiatric referrals with a Cronbach alpha of $r = 0.89$. This correlation was statistically significant with a p -value of less than 0.001. Refer to Appendix V for descriptive statistical analysis and Appendix W for correlational analysis using SPSS.

Discussion

The SOSS survey showed to be a reliable scale that can be utilized to assess and evaluate nurses' perception of those who commit suicide. According to the study results, RNs at both hospitals perceived "embarrassment" to be the most disagreed upon attribute describing those who commit suicide. The staff at both facilities viewed those who took their own lives as lost, lonely, and isolated. This suggests that RNs may be empathetic towards those who have suicidal ideation. This may also imply that this view does not have a negative impact on screening compliance.

After implementation of the suicide screening tool in the Monmouth county ED, SOSS survey scores remained the same. Both the pre- and post- survey scores illustrated a neutral level of stigma against suicide. Thus, nurses' views of those who commit suicide may not have been influenced despite education and practice change. In comparison, the Middlesex county ED had a statistically significant difference in results between the pre- and post- survey. This may indicate that stigma levels decreased among nurses after education and reinforcement of the importance of effectively utilizing the suicide screening tool.

At the Monmouth county ED, before the implementation of the PSS-3 tool, only 10% of patients were screened for suicide. Of the 191 patients, five who had a chief complaint other than a psychiatric problem received a consultation. Therefore, psychiatric illness and suicidality are not uncommon among ED patients presenting with non-psychiatric concerns (Babeva, Hughes, & Asarnow, 2016). This highlights the value of broader screening of ED patients for suicide within the adult ED population. After implementation of the PSS-3 instrument, results showed that all

patients were screened for suicide despite the chief complaint. With the newly implemented screening tool, there was a 40% increase in psychiatric consults and a 58% increase in admission for further evaluation and treatment. In addition, almost half of the psychiatric consults were made for those with a non-psychiatric chief complaint. Thus, routine screening proves to be effective in better detecting those at risk for suicide.

At the Middlesex county ED, 93% of patients were screened retrospectively; thus, the majority of nurses were compliant with screening. However, only two patients received a psychiatric consult, and both had a chief complaint of “suicide”. There is question as to whether nurses were effectively screening for the number of patients identified as having a suicidal risk was rather low. In addition, there were several patients who came to the ED for depression and none of those received a psychiatric consult. After education, screening increased by 3%. Not only were more patients screened, psychiatric referrals and admissions doubled. Again, all the patients who received consultation and admission had a chief complaint of “suicide”. Although the number of referrals and admissions were greater prospectively, it is difficult to determine if nurses were adequately screening for only those who had a suicidal complaint received further evaluation.

At both hospitals, education proved to have a positive effect on nurses’ compliance to screen more patients for suicide. This supports the assumption that education will lead to a more developed approach to suicide screening, thus, more patients will be identified and treated. It is recommended that both sites continue to take the necessary steps to incorporate routine education to ensure nurses utilize the screening tool appropriately.

There was a significant number of psychiatric referrals and admissions at one hospital compared to the other, despite both having a screening tool in place. Moreover, one hospital encountered more patients who were at risk for suicide even though that was not their original

chief complaint. This may propose that one screening tool may be more beneficial than the other in identifying at-risk patients in the ED. It is recommended that further research be conducted to compare the effectiveness of the available screening tools to determine which may be more appropriate in the ED setting.

Limitations

There were several limitations to this qualitative improvement study. The RN sample size for both facilities was relatively small, which may increase threats to external validity. A further limitation was the duration of the study for data was only collected for one month. This may skew the results because it may not be a true representation of the population. The study only analyzed patients in the emergency room, focusing on psychiatric referrals and admission to the hospital. According to current evidence-based research, the risk of suicide attempt is highest within the first 30 days after discharge and roughly 70% of patients do not attend their first outpatient appointment (Hogan & Grumet, 2016). Thus, it is recommended for future studies to focus on continuity of care after discharge. This may help to decrease suicide rates.

Implications

Clinical Practice

Healthcare providers, including, nurses, physicians, psychologists, physician assistants, and nurse practitioners, should dedicate more attention to case identification and screening for patients at risk for suicide. In this study, it was noted that increased education and screening led to an increase in psychiatric referrals and treatment. Thus, it may be beneficial for all EDs to incorporate a screening tool to better detect and prevent suicide risk.

The emergency room, in addition to behavioral health and primary care facilities, proves to be an ideal setting for diagnosing and treating mental health disorders as well as suicide. The

ED serves a large number of individuals. Health concerns are routinely addressed in these settings. Patients are asked questions about their health history and health status. In addition, patients are expected to answer questions that may be uncomfortable answering. They are reassured of their privacy and confidentiality. As long as they are asked in a non-judgmental way, most will answer questions about their history of mental illness and thoughts or feelings of suicide. Thus, healthcare settings, specifically the ED, have the potential to play a key role in preventing suicide through risk screening.

It is recommended that screening be facilitated in all EDs and address all patients, no matter their chief complaint. In this study, several patients who came in for a non-behavioral health issue received a psychiatric consult. This supports the fact that although these patients may not feel comfortable expressing suicidal thoughts, simply not asking can perpetually miss and under diagnose those who are at risk for suicide. With a standard screening tool in place that is intended for all patients, there may be an increase in detection leading to more preventative treatment and may eventually decrease suicide rates in the community.

There exist many different types of screening tools intended to identify and detect suicidal ideation. It is recommended that each ED implement a tool that is suitable to their setting, that way, the staff are more compliant in utilizing such tools. It is also suggested to assess nurses' knowledge and attitudes towards those who have suicidal thoughts and behaviors. Although this study showed an insignificant level of stigma towards suicide, one hospital displayed greater psychiatric referral plans and treatment after education on the importance of screening using their current screening tool. This proposes several assumptions: nurses were not properly screening all patients prior to education, nurses lacked the knowledge needed to be more efficient in screening, or nurses may have had negative attitudes towards screening especially if those did not present

with a mental health complaint. It is recommended that more research be conducted to truly measure nurses' attitudes towards suicide and determine if it influences suicide screening.

Healthcare Policy

The suicide screening instrument follows the policies and procedures outlined at both project sights. Although patients are being screened, TJC had not seen a decline in suicide. In 2016, TJC published Sentinel Alert Event 56 which suggested that steps be put in place to detect suicide ideation including screening, risk assessment, safety, treatment, discharge, and follow-up care for at-risk individuals. Yet again, TJC witnessed no improvement in suicide rates in the US. Effective July 1, 2019 the current NPSG was replaced with NPSG 15.01.01 in hopes of improving quality and safety of care for those who are identified as a high risk for suicide. (TJC, 2019).

There may be an improvement in the suicide rate since TJC has mandated that patients who present to a Joint Commission-accredited hospital or behavioral health care organization be screened if they have a behavioral health condition or they have been are identified as high risk for suicide. However, as this research study suggests, early prevention and detection especially in EDs should be mandated for all patients.

Quality and Safety

Utilization of a suicide screening tool in an ED may be beneficial in decreasing suicide rates and promoting patient safety. The extent of suicide among patients engaged in health care is significant. About 45% of all individuals who die by suicide have visited a physician one month prior to their death (Hogan, 2016). Thus, almost half of those people who died by suicide had recent health care contacts that failed to prevent their death. Screening is essential and can protect those patients suffering from suicidal ideation. By implementing prevention strategies, healthcare providers can provide safer care and protect patients from harm.

Fostering increased awareness and knowledge of suicide prevention may also improve the quality of patient care. Uncertainty about how to approach or discuss suicidal thoughts may exist among healthcare professionals and can negatively impact proper screening. This may be a result from lack of knowledge or experience of caring for these patients. The findings from this study support that with increased education, screening is more effective. With successful screening, those patients who suffer from suicidal ideations can be better identified and treated. Thus, prevention and screening have the potential to greatly reduce suicide rates, promoting quality care.

Education

One of the most successful prevention strategies involves programs that educate health care professionals. Current research shows that mental health literacy can improve mental health knowledge, reduce stigma, and increase help-seeking behaviors (Wei, McGrath, Hayden, & Kutcher, 2016). This study utilized educational meetings to expand nurses' knowledge and skill set to effectively screen suicidal patients. Unfortunately, prior to this study, there did not exist routine educational programs at both sites for nursing staff members to partake in regarding suicide prevention. This is not uncommon, for most clinical training programs in health care facilities do not sufficiently prepare clinicians to identify and care for suicidal patients (Arendt, Scherr, Niederkrotenthaler, Krallmann, & Till, 2018).

This study displayed that with standard reiteration of information, nurses were more aware and motivated to effectively screen for suicide. At both sites, there was an increase in psychiatric referrals and treatment after the nurses were educated on the importance of suicide screening. These findings suggest that suicide screening and prevention should be implemented into a yearly, learning activity that nurses are required to complete. It is recommended that education be tailored to the individual healthcare setting. Both sites already necessitate various educational activities for

nurses to complete through the organization's online learning portal. Suicide prevention can be added as an additional module as part of the standard of nursing educational requirement.

Economic

Suicide screening is an economically low-cost intervention for the ED. Screening tools may be easily implemented into many charting software systems without any cost to the department or facility. In this study, one hospital integrated the screening tool as an additional drop-down selection for nurses to complete when doing their initial assessment. This was achieved in collaboration with the information technology department, the nursing director of the ED, and the nurse educator. Other facilities that utilize electronic charting may also be able to easily adopt a suicide screening instrument. It is highly recommended that EDs that lack suicide screening consider utilizing such tools as a cost-effective prevention strategy to reduce suicide rates.

Although it was not measured in this study, the use of a suicide screening tool may also have a significant impact on economic-related costs. As previously noted by the CDC (2019), suicide and suicide attempts cost about 70 billion dollars in medical and work-related costs nationwide. With the use of a suicide screening tool, healthcare providers may be able to better detect those who have suicidal ideation and, in turn, abate injuries related to self-harm. This may lead to a decrease in direct patient medical costs, hospital costs, admissions and readmissions, and emergency transportation costs.

Sustainability

Suicide screening at both sites will be continued as a standard of care requirement. It is mandatory that all patients are screened during the nurse's initial assessment per the hospital and department protocol. Routine education is highly recommended for both sites to improve

continuity of effective screening. This may be done with yearly, assigned educational modules through the institution's learning portal.

Future Scholarship

This study has the potential to be carried out in a various number of avenues for future DNP projects. The project studied two screening tools: Patient Safety Screener (PSS-3) and Columbia-Suicide Severity Rating Scale (C-SSRS). There are a number of other suicide screening tools available, thus, it may be optimal for future studies to evaluate the effectiveness of other tools. The more evidence-based research regarding the validity of specific tools, the closer we may be to identify a standard suicide screening tool that is the most effective and can be used at most healthcare facilities.

It may be favorable for future DNP projects to further study the relationship between nurses' perception of suicide and screening compliance. This study used the Stigma of Suicide Scale (SOSS) to assess general attitudes towards those individuals who die by suicide. Although current research proves this scale to have good reliability and validity, this study displayed non-significant levels of stigma related to suicide. This may require further research in clinical populations to determine this scale's true validity. It may also be beneficial for future projects to evaluate other measurements of stigma in hopes to better understand which components of stigma exist and may affect suicide prevention and screening.

Dissemination

Results of the project have been disseminated to the nursing director of both project sites ED as well as the director of the education department. The results of the project have also been disseminated to the chair member and team members associated with this project at Rutgers University. This project will be exhibited at the Rutgers Poster Day in April of 2020. This study

has been submitted as an abstract to the New Jersey League of Nursing for presentation at their conference in 2020. This project will also be presented, as both sites request, for their research day and Magnet recognition meeting. It is anticipated that this project will be disseminated to the Journal of Emergency Nursing for publication. This project could potentially be presented at the Emergency Nurses Association in the Fall 2020 at their state conference via a poster presentation.

Summary

The utilization of a suicide screening tool in the ED is of high importance. Because of the risk of ineffective or lack of suicide screening, patients may be at increased risk for self-harm and death. At present, no evidence-based standards exist for suicide risk screening in the ED despite current recommendations issued by TJC. This warrants additional research for further prospective evaluations of suicide screening in the ED.

This study aimed to illustrate the feasibility of integrating suicide screening into routine patient care. Results showed that there was an increase in psychiatric referrals and treatment after implementation of a suicide screening instrument into the nursing assessment at one facility and after reeducation of the existing tool at the other. The data findings also displayed an increase in referrals after nurses received education relaying the importance of suicide detection. With that, education proves to be an essential component in nursing practice and can positively affect patient safety and quality care. Both education and preventative strategies have shown to greatly influence suicide detection. By identifying these high-risk patients, it is possible that prompt intervention initiated through screening could prevent suicide attempts, leading to reduced rates of self-harm and, potentially, lives saved.

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Appendix A

Table of Evidence

Article #	Author & Date	Evidence Type	Sample, Sample Size & Setting	Study findings that help answer the EBP question	Limitations	Evidence Level & Quality
1.	Abar, Holub, Lee, DeRienzo, Nobay, Kuehl 2017	Comparative descriptive study	<p>Sample: ED patients</p> <p>Inclusion: ages 45-85 years</p> <p>Exclusion: intoxication, overdose, suicide attempt, or mental health arrest</p> <p>Sample size: 251 subjects</p> <p>Setting: [REDACTED]</p>	<p>A total of 29 subjects (12%) reported moderately severe or severe depression, and 26 (10%) reported severe anxiety. Among depressed patients, the most common presenting complaints were chest (24%) and abdominal pain (14%).</p> <p>The median number of ED visits in the past 6 months for patients who were both depressed and anxious was 3.50 (95% confidence interval [CI] = 2.0–6.0).</p> <p>These findings highlight the need for identifying patient mental health concerns, as well as</p>	<p>The study relied on self-report measures.</p> <p>No casual interpretations can be made given the correlational nature of the findings.</p> <p>The sample was limited to adults 45 to 85 years old.</p> <p>Data represent only patients surveyed in the ED.</p>	III, Good

				<p>perceived barriers to care, to design interventions to effectively improve continuity of care</p> <p>Given automated screening tools and training, ED providers can perform screenings for anxiety and depression and then offer referrals and/or consultations if needed</p>		
2.	<p>Betz, Arias, Miller, Barber, Espinola, Sullivan, Manton, Miller, Camargo, Boudreaux</p> <p>2015</p>	Quasi-experimental study	<p>Sample: ED providers-nurses and physicians</p> <p>Sample size: 1,289</p> <p>Setting: eight Eds in seven states</p>	<p>Less than half (43%, CI=41%–46%) said that most or all suicides are preventable, with no significant difference in attitudes on this subject between nurses and physicians</p> <p>Nurses reported greater confidence in their skills to screen for suicidality in phase 3 compared with phase 1 ($p<.05$)</p> <p>Increasing proportions of physicians</p>	<p>Results might not generalize to other settings, such as EDs without an academic affiliation</p> <p>Individual providers' changing belief or practices across the study phases could not be examined due to staff turnover</p> <p>Self-report bias</p> <p>Wording of certain questions in the survey; lead to</p>	II, Good

				<p>(65% in phase 1 versus 79% in phase 3, $p<.05$) and nurses (59% in phase 1 versus 79% in phase 3, $p<.001$) said that universal screening for suicide risk would result in more psychiatric evaluations</p> <p>A greater proportion of providers reported screening patients for suicide risk and more physicians conducted secondary risk assessments for suicidal patients</p>	misinterpretation of what was being asked	
3.	Betz, Boudreaux 2016	Expert Opinion - Framework for care and evaluation of suicidal patients in the ED	All ED patients	The Joint Commission requires suicide screening and assessment for patients with primary emotional or behavioral disorders or presenting symptoms. This mandate could be fulfilled with targeted screening (e.g., all patients with mental health	Availability of resources	V, High

				<p>complaints) or universal screening (all ED patients)</p> <p>Screening does identify people with hidden suicidal ideation without negatively impacting patient flow</p> <p>Small efforts, such as explaining what to expect and providing basic comforts, can improve the patient's experience</p> <p>Providers need to become more comfortable identifying with this patient population</p>		
4.	Boudreaux, Horowitz 2014	Critically appraised recommendations	<p>Sample and size: n/a</p> <p>Settings: primary care and EDs)</p>	<p>Recommendations: individuals should be screened in reference to specific horizon. All settings must attend imminent risk</p> <p>Screening should be tailored to individual needs of the setting. It</p>	Although screening tools should be used in various settings, the ED was the main focus	IV, High

				<p>should be quick, simple, and easy to use</p> <p>Technology should be used to support screening with use of EHRs</p> <p>Once a valid approach is developed, it can be translated across different settings</p> <p>The field must build an evidence base to support clinical decision making based on suicide risk screening, while developing a better understanding of the practical considerations that influence clinical practice</p>		
5.	<p>Boudreaux, Camargo, Arias, Sullivan, Allen, Goldtsein, Manton, Espinola, Miller</p> <p>2016</p>	<p>Quasi-experimental, time-series design</p>	<p>Sample: ED patients</p> <p>Sample size: 236,791 ED visit records</p> <p>Exclusion criteria: unconscious, cognitively disabled, incarcerated</p> <p>Setting: 8 hospital EDs</p>	<p>Across the three phases (N=236,791), documented screenings rose from 26% (Phase 1) to 84% (Phase 3) ($\chi^2 [2, n = 236,789] = 71,000, p < 0.001$)</p> <p>Detection rose from 2.9% to</p>	<p>The RAs were not blinded to study phase. RAs were not involved in any of the intervention training or activities</p> <p>The study did not randomize individuals</p>	II, Good

			from seven states with annual ED census of 31,000-54,000	5.7% (χ^2 [2, n=236,789] =902, p<0.001) The majority of detected intentional self-harm was confirmed as recent suicidal ideation or behavior by patient interview	or sites due to study design, ethical, and legal considerations	
6.	Bowers, Meyer, Hillier, Blubaugh, Roepke, Farabough, Gordon, Vassar 2018	Review of CPGs for suicide risk in the ED	The American College of Emergency Physicians (ACEP) and the Veterans Administration in partnership with the Department of Defense (VA/DoD).	The American College OF Emergency Physicians (ACEP) and Veterans Affairs/Department of Defense (VA/DoD) developed clinical practice guidelines (CPGs) for the treatment and screening of patients with suicidal ideation who present to emergency departments. Seventeen PICO questions were developed for the study. Eleven studies addressed the gaps related to CPGs. Ten were being addressed by eleven studies. Authors	Based on the recent publication of the ACEP clinical policy, searches were not performed in research databases like MEDLINE or Embase It is possible that searches conducted by the guideline panel did not retrieve all relevant studies Search terms may have been inadvertently omitted producing skewed results	IV, Good

				suggest more research is needed to improve suicide risk assessment tools used in the emergency department		
7.	Ceniti, Heinecke, McInerney 2018	Literature Review	<p>Sample: ED patients who present with suicidal ideation who are high risk</p> <p>Setting: North America, the United Kingdom and Australia</p>	<p>Psychiatric history, substance use, and lower socioeconomic status were all found to be associated with higher rates of ED presentations for SRB</p> <p>Individuals who present to EDs for SRB are often chronic users of EDs and have a high rate of repeat self-harm and death by suicide</p> <p>These findings suggest that EDs could serve as a focal point for suicide treatment interventions</p> <p>Deepening our understanding of ED presentations for SRB could inform further development and</p>	<p>Underreporting of suicide-related behavior is an inherent limitation in any review that utilizes data from this area of study</p> <p>The literature on suicide-related presentations worldwide to the ED made it infeasible to summarize all available articles on the topic</p> <p>Only reviewed adult presentations to the ED and excluded adolescent literature due to past work reporting that these groups differ significantly with respect to characteristics of suicide-</p>	V, High

				implementation of interventions to reduce death by suicide	related behavior	
8.	Chang, Tan 2015	Prospective, observational study	<p>Sample: patients in ED and ED providers</p> <p>Sample size: 50 patients 150 ED providers</p> <p>Setting: single urban, university affiliated teaching hospital ED</p>	<p>The Beck Scale for Suicidal Ideation, Patient Health Questionnaire 9, and Columbia Suicide Severity Scale did not significantly predict within-ED adverse events or admissions to psychiatric facilities</p> <p>Patients who were screened positive by their nurse had 3.37 times the odds of adverse within-ED events; Patients with a positive SAD PERSONS score had 8.18 times the odds of psychiatric admission greater than 5 days</p> <p>At the α of .05 level, no screening tools correlated with patient ED course or likelihood of psychiatric admission</p>	<p>This study was conducted at a single academic medical center and may not be generalizable to other ED settings</p> <p>Given the relatively small sample size of this pilot study, the power needed to obtain potentially significant results may have hidden possible associations</p> <p>Studied only several screening tools. Many other suicide tools are used in the ED and were not assessed</p>	III, Low

				<p>Clinical impression alone and the suicide screening tools showed poor predictive value for near-term events.</p> <p>This study shows the need for the development of ED-based suicide screening instruments capable of identifying those patients with suicidal ideation at greatest risk</p>		
9.	Egede, L., Bishu, K., Walker, R., & Dismuke, C. 2016	Quasi-experimental study	<p>n=147,095; adults greater than or equal to 18 years of age</p> <p>All adults who visited the following facilities from 2004-2011: medical office, inpatient, outpatient, emergency department, and other medical care</p>	<p>The survey collects comprehensive data on healthcare utilization and expenditure and has a complex survey design, which includes multistate sampling, clustering and stratification with oversampling of minorities</p> <p>Diagnoses were coded according to ICD-9-CM. The error rate for any coder did not</p>	<p>The data was collected using a cross-sectional panel design, so causality cannot be discussed</p> <p>Self-reported comorbidities may not be as reliable as determination of a medical diagnosis. So additional studies should look at the cost of the comorbidities. Finally, the data was</p>	II, Good

				<p>exceed 2.5% on verification</p> <p>Of the total 147,095 adults in the pooled sample, 109,012 (74.1%) of individuals had neither depression nor diabetes, 21,261 (14.5%) had depression only, 13,111 (8.9%) had diabetes only and 3,709 (2.5%) had both depression and diabetes</p> <p>Women between the ages of 45-64, not married, with lower education, lower income, public insurance and live in the south suffer from both depression and diabetes.</p> <p>Individuals in all three categories were more likely to have additional comorbidities than those with neither diabetes nor depression</p>	<p>weighted to reflect the US population, but cannot be generalized outside the United States</p>	
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				<p>The overall unadjusted total mean medical expenditures for patients with neither diabetes nor depression was \$4,479 (95% CI 4363-4595), for depression only \$8,187 (95% CI 7887-8487), for diabetes only \$10,411 (95% CI 10,005-10,816), and for both depression and diabetes \$17,585 (95% CI 16,472-18,699)</p> <p>The total mean medical expenditures for neither increased from 2004/05 (\$4,352 95% CI 4072-4632) to 2010/aa (\$4,818 95% CI 4567-5068 and for depression only from 2004/05 (\$7,799 95% CI 7319-8280) to 2008/09 (\$8,509 CI 7835-9183)</p> <p>The economic burden of diabetes and depression in adults is large</p>		
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				<p>and has not changed significantly between 2004-2011. The cost of diabetes decreased slightly, the cost of diagnosed depression has increased to incrementally \$2654 per person per year</p> <p>The cost of both diabetes and depression also dropped slightly but continues to cost incrementally \$6037 more than neither diagnosis with a pooled estimate of \$17,585 per individuals per year spent on healthcar</p>		
10.	<p>Erford, B., Jackson, J., Bardhoshi, G., Duncan, K., & Atalay, Z.</p> <p>2018</p>	Non-experimental	<p>Four commonly used suicidal ideation instruments:</p> <ol style="list-style-type: none"> 1. The Beck Scale for Suicide Ideation n=472 2. The Suicide Ideation Questionnaire (for adolescents) 3. The Suicide 	<p>Beck Scale for Suicide Ideation (BSS) should be scored by professionals with clinical training and experience</p> <p>Cronbach's coefficient for the subgroups of inpatient and outpatient suicide ideators was .90 and .87.</p>	<p>The most important limitation was lack of psychometric data for some of the suicide instruments</p> <p>Three potential biases exist: publication, search, and selection biases (sometimes only studies</p>	III, Good

			<p>Probability Scale n=2154 4. Columbia-Suicide Severity Rating Scale n=917</p> <p>Inclusion criteria: 1.Used the English version of the main instrument 2.provided some type of reliability, validity, or nonconclinical sample mean data.</p>	<p>Test-rested reliability was low ($r = .54$). Concurrent validity comparisons showed strong correlations between the BSS and the C-SSR; $n = 472$, $r = .52$. Sensitivity = 1.00, specificity = .90, positive predictive power = 1.00 and negative predictive power = .72 with a CI= 95%</p> <p>Suicide Probability Scale (SPS) – 36-item self-report measure designed to assess suicide risk in adolescents and adults.. SPS internal consistency was strong across 10 studies at $\alpha = .91$ [.87, .95] $n = 2,154$. Test - retest stability over a 1- to 3-month interval in two studies was $r_{tt} = .71$ [.60, .82] ($n = 313$)</p> <p>Columbia-Suicide Severity Rating Scale (C-SSR) is</p>	<p>with positive results are published)</p> <p>Only articles in English were included which means there could have been other-language studies with potential impact not included</p> <p>Not all journals have the same rigor, so quality of the articles may vary</p> <p>Search bias may have occurred because only the instrument name and acronym were included</p>	
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				highly praised a quick, easy, and comprehensive tool to identify clients across various populations for referral to a mental health professional due to high suicide risk. The C-SSR was standardized across three populations: adolescent suicide attempters (n = 124), depressed adolescents in a mediation efficacy trial (n = 312), and adults presenting with psychiatric issues to an ED (n = 237, $\alpha = .73$)		
11.	King, Horwitz, Czyz, Lindsay 2017	Critically appraised practice guidelines	n/a	<p>Universal screening in healthcare settings may reach large numbers of adolescent and adult males at risk for suicide who would not otherwise be recognized, in addition to reaching females at risk for suicide</p> <p>It is recommended that we examine the</p>	<p>Further research is recommended to optimize suicide risk screening strategies</p> <p>Future research is warranted to evaluate the sensitivity and specificity of these strategies with different populations</p>	IV, High

				<p>possibility of improved predictive validity for a screening strategy that also incorporates items pertaining to involvement in incidents of violence and unplanned, risky behaviors, such as those associated with fearlessness, depression and hopelessness, and with alcohol and substance use</p> <p>Self-reported suicidal ideation is not indicated as a sole gateway question for continued suicide risk screening questions</p> <p>The sensitivity and specificity of suicide risk screens may be further improved if we consider theories of suicide when selecting screen items and take advantage of advanced mathematical/s</p>		
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				tatistical techniques in developing the screens		
12.	Manea, Gilbody, and McMillan 2015	Meta-analysis	n=27 Various clinical settings Studies that included PHQ-9 test	The review confirmed previous findings that the algorithm method of scoring the PHQ-9 leads to problematically low sensitivity. In both primary care and hospital settings, pooled sensitivity was around 0.55, which is lower than reported in the initial validation study	Study selection and data extraction were performed by one author, which may have introduced bias A gray literature search was performed so publication bias cannot be ruled out Heterogeneity between studies could not be explained	IV, Good
13.	Miller, Camargo, Arias, Sullivan, Allen, Goldstein, ... Boudreaux 2017	Quasi-experimental Study	Eight emergency departments (Eds) in the United States. Patients who had either a suicide attempt or active suicidal ideation and agreed to the study requirements N = 1376	288 participants (20.9%) made at least one suicide attempt and there were 545 total suicide attempts among the participants There were no significant differences in risk reduction between the TAU and screening phases. TAU = 23%; Screening phase = 22%	A sequential design was used vs. a randomized control study. While the study statistically controlled for potential differences in samples and time by using multiple covariates and analyses of seasonality and	II, Good

				<p>Patients in the intervention phase had a 5% absolute reduction in suicide attempt risk (23% vs 18%), with a relative risk reduction of 20%.</p> <p>Participants in the intervention phase had 30% fewer total suicide attempts than participants in the TAU phase.</p> <p>Negative binomial regression analysis indicated that the participants in the intervention phase had significant fewer total suicide attempts than participants in TAU phase (incidence rate ratio, 0.72; 95% CI, 0.52-1.00, $p=.05$)</p> <p>There were no differences found between the TAU and screening phases (incidence ratio, 1.00; 95% CI, 0.71-1.41; $p=.99$)</p> <p>A multifaceted intervention both during the</p>	<p>experience with study procedures, other factors may have influenced outcomes.</p>	
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				<p>ED encounter and post-discharge led only to a 5% reduction in the proportion of participants who attempted suicide over the 12-month observation period. However, the intervention led to a 30% reduction in the overall number of suicide attempts</p> <p>TAU = treatment as usual; screening, intervention (brief- in-ED intervention and follow-up phone calls)</p>		
14.	<p>Mullinax, Chalmers, Brennan, Wilke, Nordstrom, Wilson</p> <p>2018</p>	Non-experimental	<p>n=276 C-SSRS n=275 MSPS n=276 SAFE-T</p> <p>Setting: Urban academic emergency department</p>	<p>Patients were administered three suicide screening tools: Modified Sad Persons Scale (MSPS), the SAFE-T scale, and the Columbia Suicide Severity Rating Scale (C-SSRS)</p> <p>Sensitivity, specificity, negative predictive values (NPVs), positive predictive values (PPVs), negative likelihood ratios (LR-), positive</p>	<p>Sensitivity and specificity are influenced by the prevalence rate of depression and/or suicide. Sample size was too small.</p>	III, Good

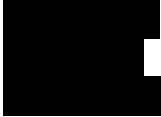
				<p>likelihood ratios (LR +), and diagnostic odds ratios, which are not affected by the population prevalence of suicidal behavior, were also calculated for each screening tool in Microsoft Excel for Mac, Version 15.33, Redmond Washington. C-statistics were also calculated in R© Version 3.4.2</p> <p>Performance of suicide screening tools:</p> <p>MSPS ≥ 6 (275) Sensitivity: 0.59 Specificity: 0.35 PPV: 0.28 NPV: 0.66 LR+: 0.90 LR-: 1.19 Diagnostic odds ratio: 0.75 c statistic (AUC): 0.52 SAFE-T > low risk” (276)</p> <p>Sensitivity: 0.84 Specificity: 0.18 PPV: 0.30 NPV: 0.73 LR+: 1.03 LR-: 0.88</p>		
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				<p>Diagnostic odds ratio: 1.17 c statistic (AUC): 0.51</p> <p>C-SSRS ≥ 4 (276) Sensitivity: 0.60 Specificity: 0.34 PPV: 0.27 NPV: 0.67 LR+: 0.88 LR-: 1.24</p> <p>Diagnostic odds ratio: 0.71 c statistic (AUC): 0.48</p>		
15.	Na, Yaramala, Kim, Kim, Goes, Zandi, Voort, Sutor, Croarkin, Bobo 2018	Non-experimental study	n =841 patients enrolled in the National Network of Depression Centers Clinical Care Registry (NNDC-CCR) - National Network of Depression Centers Clinical Care Registry (NNDC-CCR) – a long-term, prospective, observational multi-center registry with an affiliation of 15 U.S.-	<p>Statistical Analysis was performed in STATA14. Statistical significance was set at $p < 0.05$ for all analyses</p> <p>t-tests were used for continuous variables and chi-square for categorical variables</p> <p>Sample was divided into two groups: PHQ-9 – suicide item screening results vs. the evaluation of</p>	<p>The authors feel that the PHQ-9 is an insufficient assessment tool for suicide risk and suicide ideation</p> <p>Further investigation is needed in certain demographics and clinical subgroups</p> <p>The specificity and PPV of PHQ-9 suicide item were low due to a high proportion of false positive results</p>	III, High

			<p>based academic medical centers specializing in the assessment and treatment of depression</p> <p>Inclusion: Patients 18 +, primary diagnosis of a mood disorder, only patients with an initial visit</p>	<p>suicide risk via the eC-SSRS; resulted in standard 2 X 2 contingency tables</p> <p>346 (41.1%) – screened positive on PHQ-9 suicide item and 113 (13.4%) were assessed as positive for suicidal ideation with intent to act or recent suicidal behavior based on eC-SSRS responses.</p> <p>Cohort was predominantly female, Caucasian, and middle-aged. Younger age patients were separated, widowed, or divorced, low level of education, history of psychiatric hospitalization, major depressive disorder diagnosis, and higher depression severity (as</p>	<p>Participants were from mood disorder clinics affiliated with academic medical centers. This may limit the generalizability of the findings</p>	
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				<p>measured by the PHQ-8).</p> <p>Sensitivity of PHQ-9 suicide item: 97.6% (95% CI 80.2-92.5%) specificity 66.1% (95% CI 62.6-69.4%) PPV 28.6 (95% CI 24.1-33.6%) NPV 97.2% (95% CI 95.3-98.3%) for the entire cohort with e-CSSRS based suicidal ideation with intent to act or recent suicidal behavior as the gold standard</p>		
16.	<p>Petrik, Betz, Olson-Madden, Davidson, Allen</p> <p>2017</p>	Literature Review	<p>Sample: n/a</p> <p>Setting: EDs</p>	<p>Recent findings: advances in caring for patients in EDs with suicide risk include improved workflows and tools for ED providers to identify and manage suicide risk, increased patient-centeredness and quality of ED care for patients at risk</p>	<p>One of the central problems of suicide risk assessment is that suicidal individuals do not necessarily identify themselves for various reasons while those that do are not necessarily at</p>	V, High

				<p>of suicide, and shifting beliefs of ED providers regarding the feasibility of integrating the assessment and management of suicide risk into emergency care</p> <p>Strategies for universal screening, secondary screening tools, and evidence-based workflows for the management of suicide risk all show potential for feasibly addressing suicide risk in EDs</p> <p>Effective implementation of evidence-based practices is necessary. This requires change in the clinical practice and culture</p>	<p>the highest risk.</p> <p>EDs struggle with patient volumes and fear the prospect of “boarding” patients at risk for suicide as they wait for psychiatric assessment and placement.</p>	
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17.	Schaeffer, Jolles 2019	Quasi- experimental Study	n=237; all clients that were screened (FQHC) in rural central Virginia;  (HCHC)	<p>Four core interventions were used throughout the quality improvement (QI) project:</p> <ul style="list-style-type: none"> • Use of written standardized Patient Health Questionnaire (PHQ) screening tools in six languages • the Option Grid for clients who screen positive for depression • a “right care” tracking log for screen positive clients • team meetings <p>The interventions were operationalized using a point-of-care notebook called the “Blue Book”.</p> <p>The use of PHQ screening tools were tracked every three days through a tally of completed paper forms</p>	Limitations: the diversity of the patients; they were much too diverse	III, Good
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				<p>and chart audits.</p> <p>Ten measures were tracked during the 90-day implementation:</p> <p>4 process measures 4 outcome measures 1 composite aim measure 1 balancing measure.</p> <p>Improvements in follow-up care was noted; the aim of the project reached an overall mean of 71.4% with a fourth quartile means of 77.5%. The project met and/or exceeded the goals.</p> <p>With more timely identification of depression and improved patient engagement, compliance with follow-up care increased significantly</p>		
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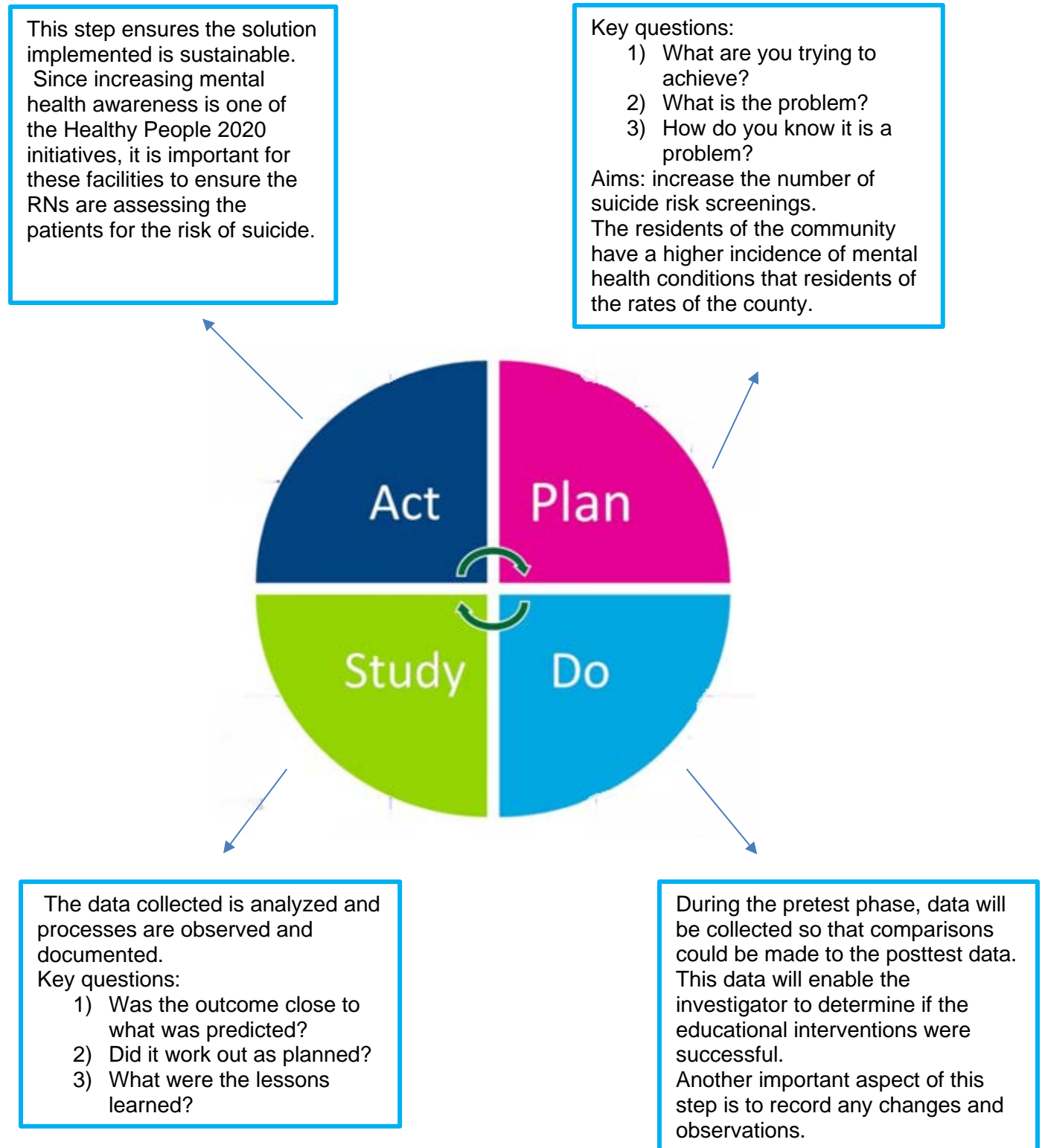
				<p>throughout the four PDSA cycles.</p> <p>In just three PDSA cycles, 15.5% of clients achieved complete remission of their depression symptoms by complying with evidence-based, appropriate care.</p> <p>After four PDSA cycles, the efficacy of depression screening and follow-up care exceeded 70%; baseline was 9.1%</p> <p>The PHQ screening tool demonstrated a sensitivity of 88% and a specificity of 88% for identification of major depression.</p>		
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18.	Viguera, Milano, Ralston, Thompson, Griffith, Baldessarini, Katzan 2015	Non-experimental	n=1416 Tertiary care, psychiatric outpatient clinic	Both the PHQ-9 item 9 and the C-SSRS detected possible suicide risk with similarly high sensitivity (95% CI), suggesting the potential values these tools may have in the clinical setting. Specificity for Item 9 as positive for suicidal risk was only 76.8 compared with C-SSRS (95.3%) High false positives have been noted with the PHQ-9 tool	Since the study was implemented at a tertiary care psychiatric population the results may not be generalizable. Informal clinical assessments.	Level III - Good
19.	Wakefield, Schmitz 2014	Case study-empirical evaluation	Sample: 4 data sets- 2 cross-sectional, 2 longitudinal Includes adults ages 18-54. Exclusion criteria: bipolar Setting: n/a	Results falsify the claim, made by proponents of elimination of the BE in DSM-5, that exclusion of uncomplicated depression would risk missing suicidal MDD cases Both concurrently and predictively, uncomplicated MDD suicide attempt rates	Due to the idiosyncratic skip patterns in the data sets, we could not present overall population rates, but rather presented rates within the set of respondents who reported periods of sadness. A major limitation is	III, good

				<p>were no greater than no-MDD history rates and less than standard MDD rate</p> <p>While no diagnostic screen is perfect, the diagnostic criteria for uncomplicated depression successfully screen out those who are likely to attempt suicide</p> <p>Any concern that excluding uncomplicated depression from MDD diagnosis would open the floodgates to missed cases of suicide attempt due to the known elevated rates of major depression can be set aside. Fear of suicide attempt should not be a consideration in deciding whether uncomplicated cases should be excluded from MDD. These findings suggest the fruitfulness of continued</p>	<p>the use of suicide attempt rates as a proxy for suicide rates</p> <p>All four of the studies used in this analysis were (in their first waves in the case of the longitudinal studies) cross sectional and relied on the memory of the respondent, which can be fallible</p>	
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				attempts to distinguish MDD subtypes that have different implications for clinical practice		
20.	<p>Zaleski, Johnson, Valdez, Bradford, Reeve, Horigan, Killian, Reeve, Slivinski, Stapleton, Vanhoy, Proehl, Wolf, Delao, Gates</p> <p>2018</p>	Clinical practice guidelines-systematic review	Sample: n/a Setting: n/a	<p>Care providers need to maintain an elevated level of vigilance and attempt to identify the potential risk factors and personal characteristics associated with suicidal behaviors</p> <p>Research supports universal screening for suicide risk by emergency departments</p> <p>When screening for the risk of suicide is limited to patients reporting a mental health chief complaint, a significant number of positive screenings are missed</p> <p>Lower socioeconomic status has been found to be a</p>	<p>Patients often do not volunteer that their injuries are due to self-harm</p> <p>Although assessment tools are available to help with assessing potentially suicidal patients, the tools often have limitations for use in the initial assessment in an emergency department.</p>	IV, High

				<p>predictor of suicide. In older populations, white participants have a higher rate of self-harm than non-whites. Previous suicide attempts and the methods used are considered to be strongly predictive of future risk for suicide</p> <p>Recommended to use tools with five or less screening questions to improve compliance with the universal screening requirement of the Joint Commission. Once a person is identified as a potential suicide risk, care providers need to provide safety and preventive care until the patient can be transferred to an area or facility that can provide further psychiatric evaluation and services</p>		
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Appendix B**Plan-Do-Study-Act (PDSA)**

Appendix C**Email: Middlesex County****Invitation to Participate in a Research Study**

Dear Prospective Participant,

My name is Robin Torpey. I am a graduate student from Rutgers University. I am conducting an anonymous survey about nurse's perception of suicide. The survey is voluntary and will be distributed and collected at the educational meetings regarding the mental health awareness education program. It is a 16-item survey that will ask you to rate how much you agree with the descriptions of people who take their own lives (suicide). Each item is rated on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. It should take about 5-10 minutes to complete.

The meetings will be held in the ED conference room on:

11/20/2019	0800-0900
11/22/2019	1300-1400
11/25/2019	1900-2000

Since your answers are to remain anonymous, PLEASE DO NOT PUT YOUR NAME ON THIS SURVEY.

Thank you for your consideration.

Sincerely,

Robin Torpey, BSN, RN: co-investigator

[Redacted signature]

Kathy Gunkel, DNP, APN, ANP-c, WHNP-c: principal investigator

[Redacted signature]

Appendix D

Flyer: Monmouth County

MANDATORY MEETING



Learn about our new Suicide Screening tool, going live November 2019!!

You must attend one of the three meetings:

DATE	TIME
1/11/2019	0800-0900
11/15/2019	1300-1400
11/19/2019	1900-2000

Meetings will be held in the ED conference room **

An anonymous survey will be distributed at these meetings for research purposes. These surveys are voluntary. Please see attached flyer for additional information.

For more information, please contact:

Co-investigator: Lauren Torpey at [REDACTED] or [REDACTED]
Principal Investigator: Kathy Gunkel at [REDACTED]

Invitation to Participate in a Research Study

We Want to Hear from You!



Who: Nursing volunteers needed!

What: A 16-item survey that will ask you to rate how much you agree with the descriptions of people who take their own lives (suicide). Each item is rated on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. The survey should be completed at the meeting and will take about 5-10 minutes to complete.

When: see previous attachment for dates and times

Where: ED conference room

Why: This survey will be part of a research study being conducted to assess suicide stigma. The purpose of these surveys is to assess whether nursing perception regarding suicide will affect screening compliance. The survey is completely anonymous and will have no impact on employment.

Completing the survey is completely voluntary and is not mandatory.

Appendix E**Consent: Middlesex County****Paper Survey****CONSENT TO TAKE PART IN A RESEARCH STUDY**

TITLE OF STUDY: Utilization of a Suicide Screening Tool to Increase Suicide Screening in Adults in the Emergency Room

Principal Investigator: Robin Torpey MSN, BS, RN-BC

This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. After all of your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You will be given a copy of the signed form to keep. Your alternative to taking part in the research is not to take part in it.

Who is conducting this research study and what is it about?

You are being asked to take part in research being conducted by Robin Torpey RN who is a Rutgers graduate student, in the Department of Nursing. The purpose of this study is to see if using a suicide screening tool in the emergency department (ED) increases diagnosis and treatment as well as see how RNs feel about the subject of suicide.

What will I be asked to do if I take part?

The survey will take about 10 minutes to complete it. We anticipate 71 subjects will take part in the study.

What are the risks and/or discomforts I might experience if I take part in the study?

There are minimal risks for those participants enrolled in the study. Breach of confidentiality is a possible harm if data were accidentally disclosed. Some questions in the study may make you feel uncomfortable answering questions about suicide. If that happens, you will need to withdraw from the study because all surveys must be totally complete. If you decide to quit at any time before you have finished the survey your answers will NOT be recorded.

Are there any benefits to me if I choose to take part in this study?

There are no direct benefits to you for taking part in this research. You will be contributing to knowledge about how nurses feel about the topic of suicide and if using a suicide tool helps to determine those who are a high risk of suicide.

Will I be paid to take part in this study?

You will not be paid to take part in this study.

How will information about me be kept private or confidential?

All efforts will be made to keep your responses confidential, but total confidentiality cannot be guaranteed.

- We will not collect any information that can identify you or other subjects. Completed forms will be stored in a locked cabinet controlled by the investigator. Responses may be converted to digital format and stored on a password-protected computer that can only be accessed by the study team. Paper copies will then be destroyed. We plan to delete the data six years after completion of the study.
- We will ask you to provide your gender, education level, and years of nursing experience when you complete the survey. This identifiable information will not be stored with your responses. Instead, your responses will be assigned a subject # which will be stored separately from your responses so others will not know which responses are yours. We will securely store the key code linking your responses to you identifiable information in a separate password-protected file which will be destroyed after data analysis is complete and study findings are professionally presented or published.

No information that can identify you will appear in any professional presentation or publication.

What will happen to information I provide in the research after the study is over?

The information collected about you for this research will not be used by or distributed to investigators for other research without obtaining informed consent from you once again.

What will happen if I do not want to take part or decide later not to stay in the study?

Your participation is voluntary. If you choose to take part now, you may change your mind and withdraw later. You may leave without turning in a completed form or by turning in a blank or incomplete form. You may also withdraw your consent for use of data you submitted, but you must do this in writing to the DNP student of this research study, Robin Torpey.

Who can I call if I have questions?

If you have questions about taking part in this study, you can contact the DNP student: Robin Torpey RN, via email: [REDACTED]. You can also contact my committee chair, Kathy Gunkel, via email: [REDACTED].

If you have questions about your rights as a research subject, you can call the IRB Director at: Newark Health and Sciences at (973)-972-3608.

Please keep this consent form if you would like a copy of it for your files.

AGREEMENT TO PARTICIPATE

1. Subject consent:

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name (printed): _____

Subject Signature: _____ Date: _____

Appendix F**Consent: Monmouth County****Paper Survey****CONSENT TO TAKE PART IN A RESEARCH STUDY**

TITLE OF STUDY: Implementation of a Suicide Screening Tool in the Emergency Room

Principal Investigator: Lauren Torpey, RN

This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. After all of your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You will be given a copy of the signed form to keep. Your alternative to taking part in the research is not to take part in it.

Who is conducting this research study and what is it about?

You are being asked to take part in research being conducted by Lauren Torpey, who is a graduate student at Rutgers University in the Dept. of Nursing. The purpose of this study is to determine nursing perception and stigma regarding suicide ideation.

What will I be asked to do if I take part?

The survey will take about 10 minutes to complete it. We anticipate 50 subjects will take part in the study.

What are the risks and/or discomforts I might experience if I take part in the study?

Breach of confidentiality is a risk of harm but a data security plan is in place to minimize such a risk. Also, some questions may make you feel uncomfortable. If that happens, you can skip those questions or withdraw from the study altogether. If you decide to quit at any time before you have finished the survey, your answers will NOT be recorded.

Are there any benefits to me if I choose to take part in this study?

There are no direct benefits to you for taking part in this research. You will be contributing to knowledge about nurses' perception of suicidal risk and appreciation of utilizing a suicide screening tool.

Will I be paid to take part in this study?

You will not be paid to take part in this study.

How will information about me be kept private or confidential?

All efforts will be made to keep your responses confidential, but total confidentiality cannot be guaranteed.

- We will not collect any information that can identify you or other subjects. Completed forms will be stored in a locked cabinet controlled by the investigator. Responses may be converted to digital format and stored on a password-protected computer that can only be accessed by the principal investigator. Paper copies will then be destroyed. We plan to delete the data six years after completion of the study.
- We will ask you to provide your gender, education level, and years of nursing experience when you complete the survey. This identifiable information will not be stored with your responses. Instead, your responses will be assigned a subject # which will be stored separately from your responses so others will not know which responses are yours. We will securely store the key code linking your responses to your identifiable information in a separate password-protected file which will be destroyed after data analysis is complete and study findings are professionally presented or published.

No information that can identify you will appear in any professional presentation or publication.

What will happen to information I provide in the research after the study is over?

After information that could identify you has been removed, de-identified responses may be used by or distributed to investigators for other research without obtaining additional informed consent from you.

What will happen if I do not want to take part or decide later not to stay in the study?

Your participation is voluntary. If you choose to take part now, you may change your mind and withdraw later. You may leave without turning in a completed form or by turning in a blank or incomplete form. You may also withdraw your consent for use of data you submitted, but you must do this in writing to the PI Lauren Torpey.

Who can I call if I have questions?

If you have questions about taking part in this study, you can contact the Principal Investigator: Lauren Torpey via email, [REDACTED]. You can also contact my faculty advisor Kathy Gunkel via email, [REDACTED]. If you have questions about your rights as a research subject, you can call the IRB Director at Newark Health and Sciences at (973)-972-3608.

Please keep this consent form if you would like a copy of it for your files.

AGREEMENT TO PARTICIPATE**1. Subject consent:**

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name (printed): _____

Subject Signature: _____ Date: _____

Appendix G

Mental Health Awareness Education Program



SUICIDE RISK ASSESSMENT



- ◆ Depression is more prevalent than cancer, coronary artery disease, and HIV/AIDS in the United States (American Foundation for Suicide Prevention, 2019).
- ◆ Depression is strongly correlated to the risk and occurrence of diabetes, hypertension, stroke, heart disease, and cancer.
- ◆ Suicide is the tenth leading cause of death in the United States among all age groups (Erford, Jackson, Bardhoshi, Duncan, & Atalay, 2018; Kleiman, Liu, & Riskind, 2014).
- ◆ More than 50% of people who commit suicide are depressed (American Foundation for Suicide Prevention, 2019).
- ◆ Depression is the biggest risk factor for suicide (Kleiman, Liu, & Riskind, 2014).
- ◆ The incidence and prevalence of suicide continues to increase (Coshal, Saunders, Matorin, & Shad, 2017).



<ul style="list-style-type: none">◆ History of trauma or loss◆ Social isolation◆ Physical illness◆ Depression◆ Bipolar disorder <p>(The Joint Commission [TJC], 2016)</p>	<ul style="list-style-type: none">◆ Sadness◆ Anhedonia◆ Insomnia◆ Significant weight loss or gain◆ Suicide ideation <p>(Bozogmehr et al., 2018)</p>	<ul style="list-style-type: none">◆ CSSR Suicide Screening Tool◆ Results◆ Negative screen◆ Positive Screen◆ Intervention(s)
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Appendix H**Mental Health Awareness HealthStream Course**

In order to pass this test, you must receive 80%. Please choose the best response:

1. Depression risk factors include(s):
 - a. History of trauma or loss
 - b. Social isolation
 - c. Depression
 - d. Bipolar disorder
 - e. A, B, C, and D

2. The biggest risk factor(s) for suicide is:
 - a. Cancer
 - b. Pneumonia
 - c. Depression
 - d. Obesity
 - e. A, B, C, and D

3. The incidence and prevalence of suicide has remained constant over the last several years:
 - a. True
 - b. False

4. Warning signs of depression:
 - a. Sadness
 - b. Insomnia
 - c. Significant weight loss
 - d. Suicide ideation
 - e. A, B, C, and D

5. _____ is more prevalent than cancer, coronary artery disease and HIV/AIDS.
 - a. Schizophrenia
 - b. Depression
 - c. Suicide ideation
 - d. Stroke
 - e. Glioblastoma

6. The Suicide Assessment Screening Tool can be found on the:
 - a. Progress Note
 - b. Plan of Care
 - c. ED Triage Note
 - d. Discharge Instructions
 - e. e. A, B, C, and D

7. Depression is strongly correlated to the risk and occurrence of diabetes, hypertension, stroke, heart disease, and cancer:
 - a. True
 - b. False

8. More than _____% of people who commit suicide are depressed:
 - a. 20%
 - b. 50%
 - c. 75%
 - d. 35%
 - e. 55%

9. The incidence and prevalence of suicide:
 - a. Continues to decrease
 - b. Continues to increase
 - c. Has stayed the same over the last five years
 - d. Has remained constant since 2017
 - e. Has not been reported


10. Suicide is the tenth leading cause of death in the United States?
 - a. True
 - b. False

Appendix I

SOSS Survey

Using the scale below, please rate how much you agree with the descriptions of people who take their own lives (suicide). In general, people who suicide are . . .

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Pathetic					
Shallow					
Immoral					
An embarrassment					
Irresponsible					
Stupid					
Cowardly					
Vengeful					
Lonely					
Isolated					
Lost					
Disconnected					
Strong					
Brave					
Noble					
Dedicated					

Appendix J**Educational handout: Monmouth County**

THE PATIENT SAFETY SCREENING TOOL PSS-3

What is it?

The PSS-3 is tool used for identifying patients in the acute care setting who may be at risk of suicide

Who should be screened?

All patients that come to the ER should be screened, no matter the chief complaint.

Patients that **may not** be appropriate for screening:

- Acuity level 1
- Patients ages 21 and younger
- Acute intoxication

When to screen patients?

All patients should be screened by the registered nurse during the initial nursing assessment.

Screening results will be documented in EPIC

Why screen?

- In the U.S., more than 44,000 people die each year by suicide, making it the 10th leading cause of death
- 1 in 5 people who die from suicide visited a hospital within the four weeks prior to their death
- Suicides that occur in hospitals remain the fourth most frequently reported sentinel event

The GOAL

- Improve suicide risk detection, decrease rates of suicide, and improve quality care and patient safety.

1

How to screen?

Introduction: "Now I'm going to ask you some questions that we ask everyone treated here, no matter what problem they are here for. It is part of the hospital's policy, and it helps us to make sure we are not missing anything important."

Depression: Over the past 2 weeks, have you felt down, depressed, or hopeless?

- Yes
- No
- Refused

Suicidal Ideation: Over the past 2 weeks, have you had thoughts of killing yourself?

- Yes
- No
- Refused

Suicide Attempt: Have you ever attempted to kill yourself?

- Yes
- No
- Refused

If **yes**, ask: when did this happen?

- Within the past 24 hours? (including today)
- Within the last month? (not today)
- Between 1 and 6 months ago?

Scoring

- If **"yes"** to item 1, **positive for depression**
- If **"yes"** to item 2 OR **"last 6 months"** to Item 3, **positive screen for suicide risk**
- Apply site protocol for further evaluation and management

Tips

- Do NOT skip any items
- Ask all questions exactly as worded
- Treat the patient with empathy|

Appendix K

Power Point Presentation



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The Patient Safety Screener (PSS-3)

Principal Investigator: Kathy Gunkel
Co-investigators: Lauren Torpey and Robin Torpey

v2 10.28.19



Suicide

- In the U.S., more than 44,000 people die each year by suicide, making it the 10th leading cause of death
- Suicide is the second leading cause of death in individuals ages 15-29
- Suicide rates increased more than 30 percent in half of the U.S. states since 1999
- Suicide costs society about \$70 billion a year in medical and work-loss costs

(Centers for Disease Control and Prevention [CDC], 2018)

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Importance

- 1 in 5 people who die from suicide visited a hospital within the four weeks prior to their death
- Suicides that occur in hospitals remain the fourth most frequently reported sentinel event
- 1,089 suicides occurring from 2010 to 2014 were among patients receiving care in a care setting or within 72 hours of discharge, including from a hospital's ED



(The Joint Commission [TJC], 2014)

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Screen



- A Patient Safety Screener (PSS-3) tool will be implemented in EPIC
- All nurses must use this instrument during their initial nursing assessment
- Scores will be documented into the system
 - A positive score will alert the provider

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The Patient Safety Screener- Opening Script

Opening script: Now I'm going to ask you some questions that we ask everyone treated here, no matter what problem they are here for. It is part of the hospital's policy and it helps us to make sure we are not missing anything important.

- Suggested to use this language before asking the PSS-3 screening questions

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PSS-3 Questions

1. In the past two weeks, have you felt down, depressed, or hopeless?

☐ Yes ☐ No ☐ Patient unable to complete ☐ Patient refused

2. In the past two weeks, have you had thoughts of killing yourself?

☐ Yes ☐ No ☐ Patient unable to complete ☐ Patient refused

3 In your lifetime, have you ever attempted to kill yourself?

☐ Yes ☐ No ☐ Patient unable to complete ☐ Patient refused

3a. If yes, when did this happen?

☐ Within past 24 hours (including today) ☐ Within last month (but not today) ☐ Between 1 and 6 months ago ☐ More than 6 months ago
☐ Patient unable to complete ☐ Patient refused

(Suicide Prevention Resource Center's [SPRC], 2016)

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Interpretation

- “Yes” to Item 2 (ideation)? = ☐ **Positive screen**
- “Within past 24 hours”, “Within last month” or “Between 1 and 6 months ago” on Item 3a = ☐ **Positive screen**
- Administer a secondary screener tool to stratify risk and guide your risk mitigation plan (ED-Safe Secondary Screener)

(Suicide Prevention Resource Center's [SPRC]. 2016)

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The ED-SAFE Secondary Screener

In EPIC, if a patient is scored positive, it will prompt a secondary screener which includes an additional 6 questions

See handout

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References

Centers for Disease Control and Prevention [CDC]. (2018). *Suicide and suicide attempts take on enormous toll on society*. Retrieved from https://www.cdc.gov/violenceprevention/suicide/fastfact.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fviolenceprevention%2Fsuicide%2Fconsequences.html

Suicide Prevention Resource Center's [SPRC]. (2016). *Patient safety Screener (PSS-3) and tip sheet*. Retrieved from <http://www.sprc.org/micro-learning/patientsafetysscreeener>

The Joint Commission [TJC]. (2014). *Sentinel event alert 56: Detecting and treating suicide ideation in all settings*. Retrieved from https://www.jointcommission.org/sea_issue_56/

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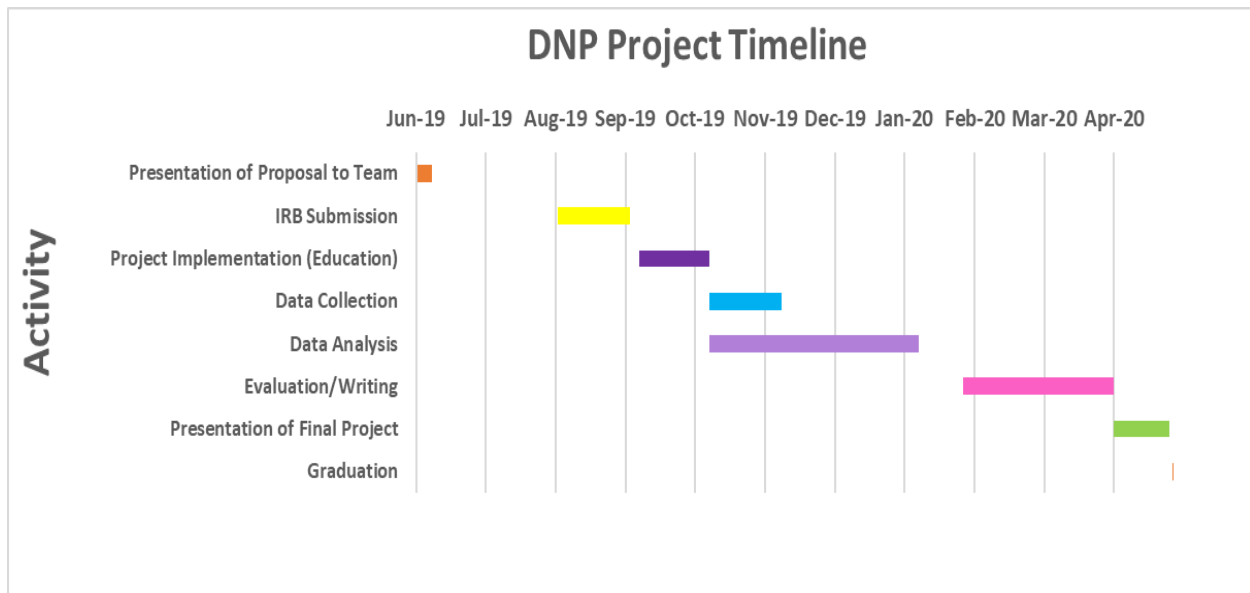
Appendix L

Patient Demographics: Data Collection Sheet

Patient	Age	Gender	Chief Complaint	Screening score	Psychiatric consults/referrals (Yes/No)	Admission to hospital psychiatric unit or other psychiatric facility (Yes/No)
1						
2						
3						
... 383						

Appendix M

Project Timeline



Appendix N**Resources**

<i>Expense</i>	<i>Cost</i>	<i>Total Cost</i>
Poster	\$7 x 5	\$35
Handout	.13 per page x 100	\$13
Total Budget		\$48

Appendix O

SOSS Survey: Cronbach's Alpha

Case Processing Summary

		N	%
Cases	Valid	62	100.0
	Excluded ^a	0	.0
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.737	16

Item Statistics

	Mean	Std. Deviation	N
Pathetic	1.5968	.73462	62
Shallow	1.5645	.73821	62
Immoral	1.6613	.95717	62
Embarrassment	1.4032	.68854	62
Irresponsible	1.8387	1.07419	62
Stupid	1.6774	.90126	62
Cowardly	1.8871	1.10297	62
Vengeful	1.6774	.84493	62
Lonely	3.9677	1.08594	62
Isolated	3.9677	1.08594	62
Lost	3.9516	1.12246	62
Disconnected	3.7742	1.19314	62
Strong	3.1129	1.35628	62
Brave	2.2581	1.12986	62
Noble	2.1452	.98923	62
Dedicated	2.2419	1.14069	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Pathetic	37.1290	48.475	.520	.712
Shallow	37.1613	49.515	.411	.719
Immoral	37.0645	48.029	.406	.717
Embarrassment	37.3226	50.648	.328	.726
Irresponsible	36.8871	47.151	.409	.716
Stupid	37.0484	48.276	.419	.716
Cowardly	36.8387	46.433	.445	.712
Vengeful	37.0484	48.178	.464	.713
Lonely	34.7581	45.334	.535	.702
Isolated	34.7581	45.170	.547	.701
Lost	34.7742	46.735	.413	.715
Disconnected	34.9516	45.162	.483	.706
Strong	35.6129	46.897	.301	.729
Brave	36.4677	54.220	-.070	.764
Noble	36.5806	54.182	-.057	.758
Dedicated	36.4839	53.074	-.002	.758

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
38.7258	54.333	7.37112	16

Appendix P

Monmouth County: Nurse Population

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	39.8125	32	7.41593	1.31096
	posttest	38.9063	32	4.82841	.85355

Paired Samples Correlations

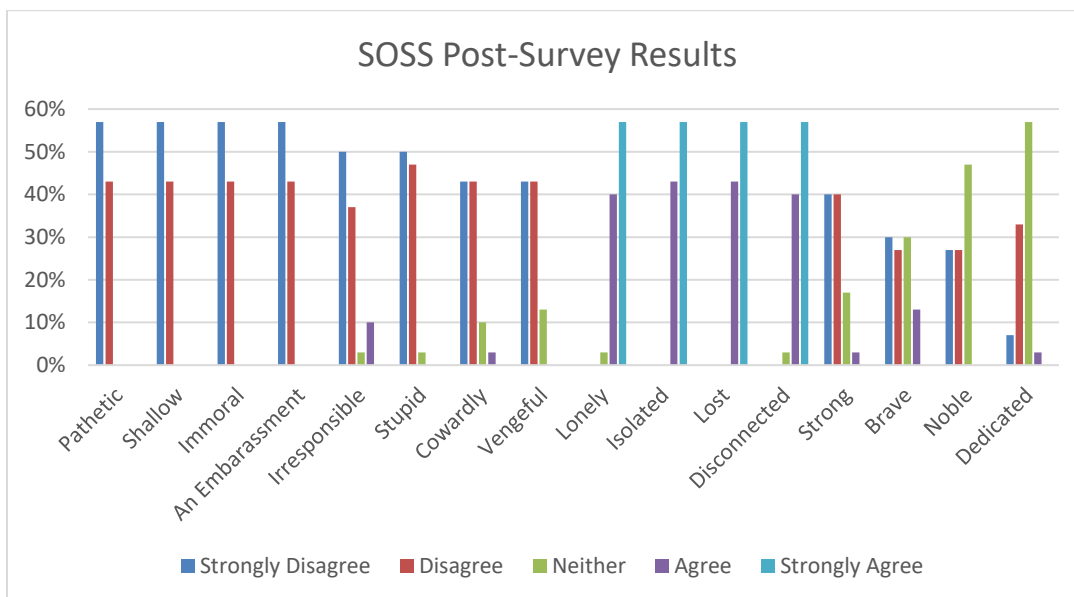
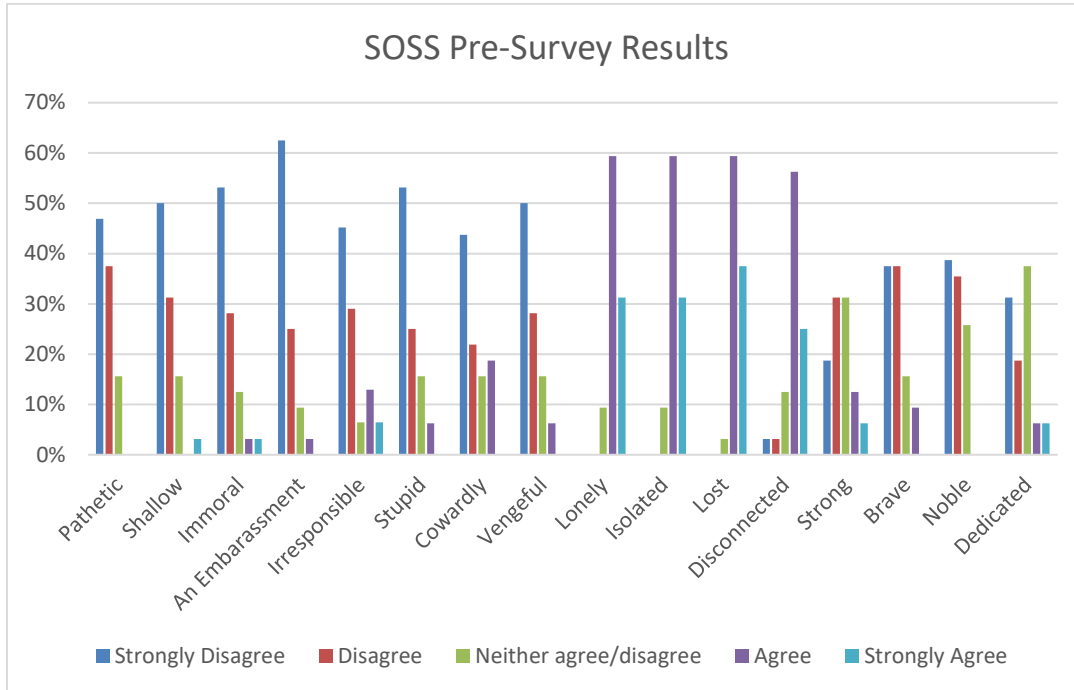
		N	Correlation	Sig.
Pair 1	pretest & posttest	32	-.036	.846

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	pretest - posttest	.90625	8.99232	1.58963	-2.33583	4.14833	.570	31	.573

Appendix Q

Monmouth County Bar Graph: Pre- and Post- Survey Results



Appendix R

Monmouth County ED: Patient Descriptive Statistics

Age

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	383	24.00	98.00	66.3577	15.38528
Valid N (listwise)	383				

Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	183	47.8	47.8	47.8
	Male	200	52.2	52.2	100.0
	Total	383	100.0	100.0	

Chief Complaint

Chief Complaint

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Abdominal pain	38	9.9	9.9	9.9
	Chest pain	47	12.3	12.3	32.9
	SOB	44	11.5	11.5	91.9

Psych Referral: Before PSS-3 tool

Psychiatric Referrals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	171	89.5	89.5	89.5
	Yes	20	10.5	10.5	100.0
	Total	191	100.0	100.0	

Psych Referral: After PSS-3 tool

		Psychiatric Referral			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	164	85.4	85.4	85.4
	Yes	28	14.6	14.6	100.0
	Total	192	100.0	100.0	

Admission- Before PSS-3 Tool

		Admission			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	179	93.7	93.7	93.7
	Yes	12	6.3	6.3	100.0
	Total	191	100.0	100.0	

Admission- After PSS-3 Tool

		Admission			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	173	90.1	90.1	90.1
	Yes	19	9.9	9.9	100.0
	Total	192	100.0	100.0	

Appendix S

Correlational Test Using Pearson's Coefficient: Monmouth County

		Correlations	
		PSS3score	Referral
PSS3score	Pearson Correlation	1	.908**
	Sig. (2-tailed)		.000
	N	192	192
Referral	Pearson Correlation	.908**	1
	Sig. (2-tailed)	.000	
	N	192	192

** . Correlation is significant at the 0.01 level (2-tailed).

Appendix T

Middlesex County: Nurse population

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	36.4667	30	6.43125	1.17418
	posttest	34.7667	30	5.39913	.98574

Paired Samples Correlations

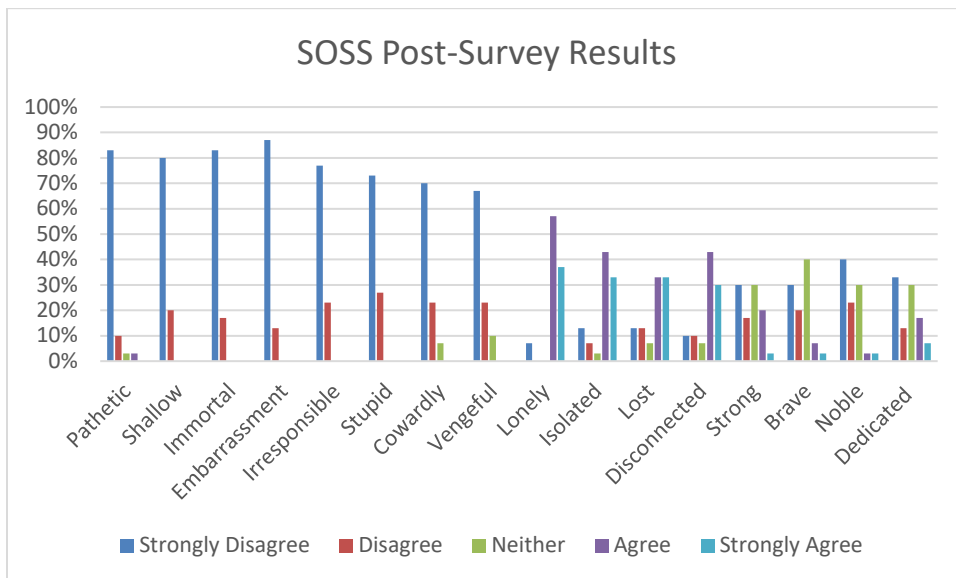
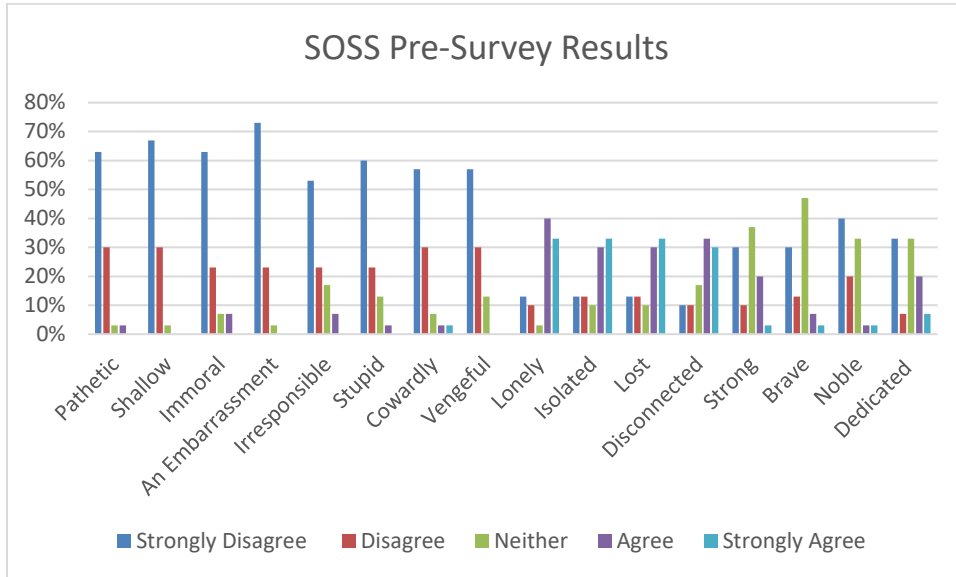
		N	Correlation	Sig.
Pair 1	pretest & posttest	30	.746	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval				
			Std.	Std. Error	of the Difference				Sig. (2-
		Mean	Deviation	Mean	Lower	Upper	t	df	tailed)
Pair 1	pretest - posttest	1.70000	4.32435	.78951	.08526	3.31474	2.153	29	.040

Appendix U

Middlesex County Bar Graph: Pre- and Post- Survey Results



Appendix V

Middlesex County ED: Patient Descriptive Statistics

Age

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	384	21.00	107.00	54.8880	20.18984
Valid N (listwise)	384				

Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	209	54.4	54.4	54.4
	M	175	45.6	45.6	100.0
	Total	384	100.0	100.0	

Chief Complaint

Chief Complaint

		Frequency	Percent	Valid Percent	Cumulative Percent
	Abdominal pain	24	6.3	6.3	6.8
	Abdominal Pain	2	.5	.5	7.3
	Chest pain	42	10.9	10.9	29.9
	SOB	24	6.3	6.3	89.1

Retrospective: Referrals and Admission

Referral

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	190	99.0	99.0	99.0
	Y	2	1.0	1.0	100.0
	Total	192	100.0	100.0	

Admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	191	99.5	99.5	99.5
	Y	1	.5	.5	100.0
	Total	192	100.0	100.0	

Prospective: Referrals and Admission**Referral**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	188	97.9	97.9	97.9
	Y	4	2.1	2.1	100.0
	Total	192	100.0	100.0	

Admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	188	97.9	97.9	97.9
	Y	4	2.1	2.1	100.0
	Total	192	100.0	100.0	

Screening**Retrospective Screening**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	14	7.3	7.3	7.3
	Y	178	92.7	92.7	100.0
	Total	192	100.0	100.0	

Prospective Screening

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	7	3.6	3.6	3.6
	Y	185	96.4	96.4	100.0
	Total	192	100.0	100.0	

Appendix W

Correlational Test Using Pearson's Coefficient: Middlesex County

		Correlations	
		C-SSRS score	Referral
C-SSRS score	Pearson Correlation	1	.891**
	Sig. (2-tailed)		.000
	N	192	192
Referral	Pearson Correlation	.891**	1
	Sig. (2-tailed)	.000	
	N	192	192

** . Correlation is significant at the 0.01 level (2-tailed).