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Utilization and Documentation of Hospital Admission Depression Screening: A Quality Improvement Project

Kimberly A. McNeese
kmcne008@fiu.edu

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Utilization and Documentation of Hospital Admission Depression Screening:

A Quality Improvement Project

A Scholarly Project Presented to the Faculty of the
Nicole Wertheim College of Nursing and Health Sciences

Florida International University

In partial fulfillment of the requirements
For the Degree of Nursing Practice

By

Kimberly McNeese, MSN, FNP-BC

Lead Professor

Deana Goldin, Ph.D., DNP, APRN, FNP-BC, PMHNP-BC

C. Victoria Framil, DNP, APRN, ANP-BC

Clinical Preceptor

Crystal Allen, DNP, APRN, PMHNP-BC

Approval Acknowledged:

_____, DNP Program Director

Date: _____

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Abstract

Background: Connections between inflammation and the brain appear to be driving the development of depression in modern times. Cardiovascular disease (CVD) is inherently a chronic inflammatory illness, and evidence supports a bidirectional relationship between CVD and depressive disorders. Depression is a mental health condition that is commonly comorbid in individuals with CVD, exacerbates other chronic diseases, and negatively affects health outcomes. Individuals with CVD are at a higher risk of experiencing depressive symptoms and developing depressive disorders than members of the public. Clinicians are not aware of the high levels of comorbidity between CVD and depression. Early detection of depressive symptoms can lead to better management, improving patient care and outcomes. Though the prevalence of depressive symptoms is higher in individuals with CVD, the signs and symptoms of depression are frequently overlooked and undocumented by clinicians, upon hospital admission and throughout hospital stays for individuals with cardiovascular events.

Objective: The primary objective of the QI project was to assess the impact of an educational presentation focused on the comorbidity of depression and CVD, patient benefits of depressive symptom documentation, and the SIG-E-CAPS mnemonic on clinician knowledge, attitude, and behaviors regarding the subjects.

Methods: Utilizing a pretest/posttest design, clinician knowledge levels, attitudes regarding and behaviors surrounding depression assessment upon admission for CVD were ascertained. Pretest responses were used in an educational session, then post session test responses were compared.

Conclusion: Educational presentations containing evidence-based information about the links between depression and CVD as well as the benefits of depression screening and documentation to patient health increases the knowledge and attitudes of clinicians in a cardiac unit. The educational presentation also has positive impacts on the overall behaviors of clinicians and the likelihood of clinicians listening carefully for depressive symptoms expressed by patients and screening for depression upon admission. The results of the QI project can be used in further studies to justify the need for depression screening protocols upon admission of CVD patients.

Table of Contents

| | |
|---|----|
| I. Introduction | 6 |
| Problem Statement..... | 7 |
| Background..... | 8 |
| Prevalence..... | 9 |
| Significance and Scope of the Problem | 10 |
| Consequences | 10 |
| Governing Bodies and the Financial Impact of Documentation | 11 |
| Knowledge Gaps..... | 12 |
| II. Summary of the Literature | 13 |
| III. Purpose and PICO Question | 26 |
| Purpose | 26 |
| PICO Question..... | 26 |
| IV. Definition of Terms | 27 |
| V. Theoretical Framework and Conceptual Model | 27 |
| Theoretical Framework..... | 27 |
| Conceptual Model..... | 29 |
| VI. Methodology | 31 |
| Introduction of QI Methodology (PDSA)..... | 31 |
| Study Design..... | 32 |
| Setting..... | 32 |
| Sample | 32 |
| Intervention..... | 33 |
| Data Collection and Analysis | 34 |
| Protection of Human Subjects | 34 |
| Dissemination Plan | 35 |
| Timeline..... | 36 |
| Benefits | 37 |
| Risks | 37 |
| Do Phase | 37 |
| Study Phase..... | 37 |
| VII. Results..... | 38 |
| Demographics | 38 |
| Pre- and Post-Intervention Results of the Knowledge, Attitudes, and Behaviors | 40 |

| | |
|--|----|
| VIII. Discussion..... | 42 |
| IX. Limitations..... | 45 |
| X. Implications for Advanced Practice Nursing..... | 45 |
| XI. Conclusions | 46 |
| XII. References | 48 |
| XIII. Appendices | 61 |
| Survey Instrument..... | 61 |
| Participant Consent Form | 62 |
| IRB Approval Letter | 67 |
| Jackson Health System Letter of Support..... | 68 |
| Recruitment Flyer | 70 |

I. Introduction

Optimal health outcomes are dependent on early recognition of illness, especially symptoms associated with comorbid conditions that may exacerbate a current illness. Consistent assessment, recognition and management with standardized documentation methods are ideal for tracking a patient's conditions. Mental health problems can have an adverse effect on the course of cardiac disease and lacks the integration of diagnosis and treatment in hospital inpatient cardiac care. Depression is a comorbid condition commonly associated with cardiovascular disease (CVD) and remains under recognized, under diagnosed and undertreated among these individuals (Dogu & Aydemir, 2018; Westas et al., 2020; Demler, 2018). Though the relationship between depression and CVD has been well documented, is not uncommon for individuals admitted to a cardiac unit in hospitals to have comorbid depression overlooked (Demler, 2018). Individuals with comorbid depression are twice as likely to have an acute cardiovascular event, compared to those without comorbid depression (Mattina, Van Lieshout, & Steiner, 2019).

Inpatient hospital protocols do not prioritize mental health screening for patients admitted for cardiovascular conditions that are not related to substance abuse or other mental health conditions (Westas et al., 2020). Due to the under recognition of the link between CVD and depression, screening for depressive symptoms at the time of admission could serve as an opportunity to manage referrals to psychiatric teams for integrated care. It is imperative that hospitalist teams, including nurses, receive educational information about the impact of depression on cardiovascular disease and methods to recognize depression in CVD patients. The alarmingly high rate of depression symptoms observed in cardiac patients points to the need for integrating mental health assessments and treatment into hospital cardiac units. Educating

clinicians about the prognostic value of depression with regard to the course of heart disease, adherence to treatment and quality of life needs to be considered (Jackson, Leslie, & Hondorp, 2020).

Problem Statement

Depression is one of the most common mental health problems and a leading cause of disability worldwide (WHO, 2020). Individuals living with chronic diseases have a higher risk of having or developing depression (Merschel, 2020). Recent studies have shown that people with cardiovascular disease (CVD) are two to three times more likely to have depressive illness than the general public (Merschel, 2020). According to the American Heart Association(AHA) (AHA, 2020), depression and cardiovascular disease are commonly comorbid conditions (Zambrano et al., 2020). The United States Preventative Task Force (USPSTF) guidelines recommend that all adults over the age of 18 receive depression screenings and they identified individuals with CVD as a high-risk group for comorbid depression (Siu et al., 2016). Patients who have been admitted to the hospital for CVD incidents have a higher risk of mortality when they have coexisting depressive symptoms, than those without comorbid depression (Bradley & Rumsfeld, 2015). The inflammatory response is strongly implicated in the pathophysiology and development of depression. Historically, inflammation resulted in communication with inflammatory pathways and neuro circuits in the brain, causing behavioral responses, like avoidance and alarm, assisting early humans in response to pathogens and predators (Miller & Raison, 2016). However, similar connections between inflammation and the brain appear to be driving the development of depression in modern times (Miller & Raison, 2016). Cardiovascular disease is inherently a chronic inflammatory illness, and evidence supports a bidirectional relationship between CVD and depressive disorders (Halaris, 2017).

The American Heart Association (AHA) recommends screening patients with CAD for depressive symptoms using the Patient Health Questionnaire (PHQ-2) (PHQ-9) to identify patients at risk for depression and provide further assessment and treatment. However, clinician documentation of mental health screening for referral to a psychiatric specialist is not routinely being done on admission, and 79% of clinicians taking care of cardiovascular patients are not using any standard method to screen for depressive symptoms. (Mailloux, Haas, Kennedy, & Dejongh, 2020). Neither the American Health Information Management Association (AHIMA) nor the Centers for Medicare and Medicaid Services (CMS) suggest a depression screening tool in admission documentation for a CVD incident (AHIMA, 2003; CMS, 2014). In omitting an inpatient admission depression screening for CVD patients, hospitalists are missing not only an opportunity to document possible depressive symptoms, but also to capture an accurate patient Severity of Illness and Risk of Mortality (SOI/ROM). Hospitalists are members of a team of clinicians, medical doctors (MDs), nurse practitioners (NPs), Physician assistants (PAs), therapists, and nurse case managers who work together to manage patients requiring inpatient admission to a hospital. Hospitalists perform admissions and assessments, ongoing assessment and plans, coordinate specialty care and discharge planning.

Background

The term “depression” is commonly misused among the general public to describe brief intermittent periods of sadness, loneliness, or hopelessness. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) defines major depressive disorder (MDD) or, simply, depression, is a mood disorder resulting in persistent feelings of sadness, loss of interest in activities, and hopelessness lasting longer than two weeks. The American Psychiatric

Association (APA), author of the Diagnostic and Statistical Manual of Mental Disorders (DSM5) (2013) asserts an individual must meet a set of criteria of five or more symptoms during a two-week period. These include depressed mood most of the day, nearly every day, decreased interest in daily activities, weight loss, diminished thought patterns, sedentary lifestyle, energy loss, feeling worthless, decreased concentration, thoughts of death or suicidal ideation (APA, 2013). Furthermore, experiencing these symptoms must cause the individual clinically significant distress or impairment in social, occupational, or other important areas of functioning. The symptoms must also not be a result of substance abuse or another medical condition (APA, 2013).

Prevalence

In the United States, depression is the most common mood disorder, with over 19 million adults experiencing a major depressive episode in 2019 (SAMHSA, 2020). A recent study found that 81% of patients surveyed with chronic kidney, heart, and respiratory disorders were found to also have symptoms of mild to major depressive disorder when screened in a hospital setting (Dogu & Aydemir, 2018). Additionally, the prevalence of depression in the United States is expected to increase in the face of the emotional as well as social and economic impact of the global Covid-19 crisis (Ettman et al., 2020). The population of individuals with CVD is at an exponentially higher risk of suffering comorbid depression, than the risk of depression in patients without CVD, though prevalence varies according to type and severity of CVD (Manish, 2019). Approximately 15% to 20% of individuals diagnosed with coronary artery disease have depression, and 38% of coronary artery bypass graft (CABG) candidates met depression criteria (Manish, 2019). Patients with illnesses that affect their ability to participate easily in daily activities are also more likely to experience depression. Although non-Hispanic Caucasian Americans have a high prevalence of depression at 17.9% of the population, Black Americans,

are more likely to have chronic depression at 56% than Caucasian Americans at 38.6% (Bailey, Mokonogho, & Kumar, 2019). Hispanic and Latino, including black Hispanic and Latino patients make up 65% of the patient population being treated at the proposed project site, with non-Hispanic Black residents comprising 16.8% (JMH, 2017).

Significance and Scope of the Problem

According to the most recently published Community Health Needs Report, the county this hospital serves, ranks in the bottom 25th percentile of the state, for depression, at 13.3% of adults, which is higher than the state percentage of 10% and the United States at 11%. (JMH, 2018). This number is on the rise from 2014, where county depression rates were 12.9%. (JMH, 2018). Inversely, there is currently no protocol in place to address mental health, upon hospital inpatient admission, and the most recent published Medical Staff Rules mention Psychiatric issues and referral 3 times in a 30-page document (JMH,2014). Mental health is not mentioned once. A recent study found that even when individuals expressed experiencing depressive symptoms, their clinicians were focused on only treating their physical symptoms (Westas et al., 2020). This led the study authors to the belief that even if clinicians understand the signs and symptoms of depression, they are often overlooked in favor of physical symptoms related to CVD (Westas et al., 2020).

Consequences

Although awareness about the symptoms of depression and the consequences of going untreated have increased, many individuals with depression do not seek out treatment (Maurer, Raymond, & Davis, 2018). CVD patients who experienced myocardial infarctions (MI) with depressive symptoms are more likely to be obese, smoke, drink, and refrain from healthy exercise activities than MI survivors without depressive symptoms (Nicholson et al., 2020).

According to Bahall (2019), individuals with CVD and comorbid depression are at increased risk for repeated cardiovascular events, adverse health outcomes and decreased quality of life.

Individuals with coexisting depression and CVD are less likely to adhere to health promoting behaviors, like medication compliance (Park & Oh, 2021). Untreated depression in CAD patients can lead to a 40% increase in coronary events (Danovitch, & Arnold, 2019).

Governing Bodies and the Financial Impact of Documentation

The Centers for Medicare & Medicaid Services (CMS) are part of the Department of Health and Human Services (HHS), and one of its many roles is the task of regulating the documentation and billing guidelines followed by clinicians (CMS, 2021). In the hospital setting, clinical documentation, Electronic Health Record (EHR) usage and billing fall under the department of Healthcare Information Management (HIM). The American Health Information Management Association (AHIMA) is the organization that promotes business and clinical use of the EHR, certifies HIM professionals, and educates clinicians on clinical documentation (AHIMA, 2021). Diagnoses and objective clinical findings have been used by CMS since 1984, to track and trend the Severity of Illness (SOI) and the Risk of Mortality (ROM) of the patient (CMS, 2021). SOI and ROM are numbers on a scale of 1-4, telling CMS how ill a patient is, with 4/4 being the most severe/highest risk. Every diagnosis written by a clinician has the possibility of increasing the SOI/ROM (CMS, 2021). In clinical documentation, depression contributes to the SOI. An increased SOI can justify a higher number of days that a patient is admitted to the hospital, called Length of Stay (LOS) which can increase the amount of money a hospital is paid for that admission (Fontaine, 2020).

CMS released a decision memo in 2011, stating that annual depression screening is necessary in primary care for early disease detection and prevention, and require utilization of

PHQ2 and PHQ9 depression screening, but they have released no information regarding hospital admission depression screening (CMS, 2021). At this time, the PHQ2 and PHQ9 cannot be used in inpatient hospital billing, as they do not actually include a diagnosis, either definitive or possible (CMS, 2021).

CMS has put in place financial penalties for hospitals who readmit a patient within 30 days of discharge (Williams, Chung, & Muning, 2017). These penalties lead to payment reduction for hospital stays related to the diagnosis that previously led to inpatient admission. Individuals with CVD and untreated comorbid depression are at an increased risk of medication noncompliance and hospital readmission (Goldstein, Gathright, & Garcia, 2017). In 2014, Cedars Sinai Hospital began utilizing depression screening for all inpatient admissions and saw that early assessment and management helped to decrease the number of 30- and 60-day readmissions and drop LOS by 6.3% in a 3-year period (Danovitch, & Arnold, 2019).

Knowledge Gaps

Lack of understanding of clinical documentation can lead to missed opportunities to capture increased SOI, LOS, and increases the chances of readmission. In 2018, The American Medical Association, released an executive summary stating that there are concerns about the adequacy of clinical documentation training in medical schools (AMA, 2018). Cedars Sinai Hospital, in Los Angeles, CA, was one of the first large teaching and research hospitals to implement an admission depression screening tool in 2014 (Danovitch, & Arnold, 2019). This means that most physician driven admission depression screening information is less than a decade old. There are several studies highlighting the ways in which depression screening can help improve outcomes through early recognition and intervention. Interventions come in multiple forms, including talk therapy, religious support through clergy, discussion with a social

worker and case manager about outpatient care and services, to provide for an easier transition back home after discharge. Some medications may take up to 4-8 weeks to reach efficacy, so it is important to start as early as possible (NIMH, 2021).

II. Summary of the Literature

Search Strategy

A literature review was conducted to locate meta-analysis, systematic reviews, and studies related to the prevalence of comorbid cardiovascular disease and depression, the impact of comorbid depression on quality of life, and the presence or lack of documentation of medical admission screening for depression. The databases used to search for literature were PubMed, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Cochrane Library. The keywords used to search databases were cardiovascular disease (CVD) and depression, depression and chronic disease, comorbid depression, depressive symptoms, medical admission depression screening, SIG-E-CAPS, healthcare mnemonics, medical hospital documentation and billing.

Inclusion and Exclusion Criteria

The criteria for inclusion were studies discussing depressive symptoms in CVD patients, the impact of depression on patients with CVD, and inpatient depression screening tools used with CVD patients. Inclusion criteria focused on the adult population, age over 18, was peer reviewed, and published in the English language after 2016. Studies focusing on persons aged 18 and under or only taking place in primary care were excluded.

The initial search in the CINAHL database resulted in 47 articles. After applying the inclusion criteria and reading the abstract and titles of the articles, 11 articles from the CINAHL database were deemed relevant. The initial search in the PubMed database gave 75 results and

after applying the inclusion criteria as well as reviewing the abstract and title, 8 articles were relevant to the topic. The final database search through the Cochrane Library returned 139. articles with 6 relevant and met the inclusion and exclusion criteria. A total of 41 articles were cited in the literature review.

Cardiovascular Disease and Depressive Symptoms

Cardiovascular disease (CVD) is characterized as any disease that affect the function of the heart and blood vessels (Virani, et.al., 2020). These diseases include congenital heart disease (CHD), coronary heart disease or myocardial infarction, stroke, heart failure, coronary artery disease (CAD), rheumatic heart disease, peripheral vascular disease and cardiomyopathies. The literature revealed research stating that in 2017, 10.6% of the population was diagnosed with cardiovascular disease (Virani, et.al., 2020). Individuals with CVD are more likely to experience depressive symptoms than those without CVD while individuals with diagnosed major depressive disorder (MDD) were at a higher risk of developing CVD when other modifiable CVD risk factors were mitigated (Bangalore et al., 2018). However, Shao et al. (2020), stated that while depression is a highly prevalent risk factor in both onset and mortality of CVD, people suffering from CVD are more likely than healthy individuals to develop depression. The prevalence of depressive symptoms among cardiovascular patients and the higher risk of developing CVD in individuals with depression has given enough of a reason for many experts to suggest the need for depression to be listed as a risk factor for several cardiovascular diseases (Armstrong et al., 2017).

Aside from the information regarding the prevalence of a comorbidity of depression and CVD, depressive symptoms in CVD patients can be difficult to diagnose as several of the symptoms of depression can also be the same as the effects of CVD on an individual's body

(Demler, 2018). Individuals suffering comorbid depression often present with fatigue, difficulty performing daily tasks, lower energy, and perpetual feelings of hopelessness (Demler, 2018). Depression can be overlooked because these symptoms are also seen in cardiovascular diseases (Demler, 2018). According to Demler (2018), in many cases, depression and anxiety can occur after a CVD incident and may be overlooked and treated as part of the CVD incident, when symptoms such as increased heart rate are also present. Anxiety has been found as a possible precursor to developing late-stage depression in CVD patients. Harshfield et al. (2020) conducted an analysis of data in the United Kingdom from the Emerging Risk Factors Collaboration (ERFC) and the U.K. Biobank of 563,255 participants and found higher CVD development and incidents in patients with baseline depressive symptoms but no CVD symptoms at baseline in 2006-2010 with follow-ups in March 2020. The authors concluded that depressive symptoms, even symptoms not qualifying as a depressive disorder at the time of the original surveys, were associated with later CVD incidents such as heart attack and stroke (Harshfield et al., 2020).

Linking CVD, Inflammation, and Depression

Since the 1990's, research has shown a relationship between inflammation, the immune system and depression. Much of the current research in these areas has focused on the significance of inflammation and the immune system in depression and CVD (Mattina, Van Lieshout & Steiner, 2019). Depressive symptoms have also been linked to an increase in immune system inflammatory activation that affects both the peripheral and central nervous systems (CNS) (Lee & Giuliani, 2019). Miller and Raison (2016) also stated that individuals who are at a high risk of developing depression have higher inflammatory responses to similar laboratory stressors than those who are at a low risk. Furthermore, the stronger the inflammatory response to a psychosocial stressor, the greater the risk of depression in the subject.

Inflammation occurs in cardiac, cardiovascular, and cerebrovascular pathology independent of the presence or absence of depression, and Halaris, (2017), asserted that stress is a possible frequent trigger for the co-morbidity of cardiovascular disease and depression. Chronic stress causes a disruption in the autonomic nervous system's homeostatic equilibrium, resulting in chronic sympathetic overdrive and decreased vagal tone, leading to reduced function of endothelial cells (the cells lining the heart, and vessels) (Halaris, 2017). The vagus nerve runs not only through the neck and head, but also through the chest and belly, where it assists in organ innervation (Morris, 2019). A pro-inflammatory condition, like CVD or depression, is exacerbated by reduced vagal tone (Halaris, 2017). Depression has been linked to endothelial dysfunction, which is also believed to be a genetic marker for the disorder (Halaris, 2017).

Modifiable Risk Factors

Chronic illness can mean a need for changes in behavior and habits, whether it be diet, exercise, or medications. Modifiable risk factors are defined as risk factors an individual can control either with a change in lifestyle or through medication and other medical interventions (Yusuf et al., 2019). Modifiable risk factors for CVD include the use of tobacco or alcohol, obesity, diet, activity levels, high blood pressure. (Yusuf et al., 2019). According to Jackson, Leslie, and Hondorp (2018), individuals with depression are more likely to smoke, decrease their physical activity levels, have a poor diet, and are less likely to adhere to medications. Pederson et al. (2017) discusses that the presence of depressive symptoms such as fatigue and hopelessness create a barrier to patients' willingness to change their behavior. There is a cycle of physical risk factors that can cause CVD, such as obesity, that makes it difficult for a patient to engage in physical activity which can interact with the mental health of the patient such as causing depression and hopelessness in believing they could start a healthy regimen (Pederson et al., 2017).

Despite the modification of unhealthy behaviors, depressive symptoms and CVD still have a high prevalence of coexisting together (Jackson, Leslie, & Hondorp, 2020). A 2016 study conducted in a university hospital in Brazil with 120 patients diagnosed with coronary heart disease, congestive heart failure, and valvular heart disease for five years or more showed that even with 85.5% of the patients reporting they did not smoke and 80.8% reporting no use of alcohol, 17.5% had depressive symptoms and 32% had anxiety (Carvalho et al., 2016). This is important because though some of the coping mechanisms of depression such as smoking, alcohol consumption, sedentary lifestyle, and unhealthy eating habits are also risk factors for CVD, those unhealthy behaviors do not have to be present for depressive symptoms and CVD to coexist.

Medication Compliance

Patients with comorbid CVD and depression are less likely to adhere to their medication regimens which can be a factor in decreased life expectancy (Goldstein, Gathright, and Garcia, 2017). Goldstein, Gathright, and Garcia (2017) discussed a study in which 55 adults with CVD were placed on an aspirin regimen and monitored for their adherence to the medication. Subjects not diagnosed with depression had better adherence at 69% of the time monitored while subjects diagnosed with depression only adhered to the aspirin regimen 45% of the monitored days (Goldstein, Gathright, and Garcia, 2017). Not adhering to medication regimens and behavioral changes increases the CVD incident rate as well as the rate of hospital readmissions (DiSante, Bires, Cline, & Waterstram-Rich, 2017).

Obesity

Obesity has become a worldwide epidemic and depression, obesity and CVD have been linked in several reports. The literature supports a reciprocal link between depression and obesity (Bergantin, 2020). Obese people are at an increased risk of the development of depression and

depressed people have a higher risk of developing CVD than non-depressed people (Bergantin, 2020). Literature revealed that comorbid obesity and CVD has been increasing in prevalence (Dwivedi et al., 2020). While Dwivedi et al. (2020) did state that obesity is associated with an CVD event risk, the same report also states that there are conflicting findings regarding general population vs. specific subpopulations such as those with other disorders, syndromes, and disease. A 2018 report revealed that in a 10-year study of 76 participants with obesity and depression, the population was split into three different treatment groups; one utilizing behavioral weight control, one using cognitive behavior therapy for depression and the last, using both methods (Faulconbridge et al., 2018). The results showed that while the third group, utilizing both treatment regimens had greater weight loss, all three groups showed significantly decreased depression scores (Faulconbridge et al., 2018).

Impact of Depression on CVD Health Outcomes

The symptoms of CVD and comorbid depression have been associated with decreased quality of life. A study of 329 patients over age 75 with stable CVD, being treated for thyroid dysfunction, revealed a decreased health related quality of life, secondary to impaired sleep and breathing, discomfort and general symptoms and feelings of decreased vitality, distress, and depression (Ojala, Sintonen, Roine, Strandberg, & Schalin-Jantti, 2020). Individuals with both depression and CVD have poorer prognoses than individuals without depression (Jha et al., 2019). Jha et al. (2019) cites a 2011 article discussing the increased risk of mortality in patients with CVD and comorbid depression. According to Meijer et al. (2011), patients who developed depressive symptoms after a myocardial infarction (MI) event were over two times more likely to die from a subsequent cardiac event and were more likely to develop a new CVD condition than those without depression after an MI event. A study conducted between 1993 and 2016 found that patients with a depression diagnosis any time after a coronary artery disease (CAD)

diagnosis had an increased risk of death and a shorter lifespan than patients without a depression diagnosis (May et al., 2017). More specifically, the May et al. (2017) study showed that fewer patients diagnosed with depression less than a year after a CAD diagnosis died than patients with a depression diagnosis after a year or longer following a CAD diagnosis. According to the literature, the prevalence of anxiety and psychological disorders among patients with chronic respiratory disease (CRD), chronic heart disease (CHD) and chronic renal failure (CRF) is estimated at the level of 21–81% (Dogu & Aydemir, 2018).

Social Impact

Comorbid depression negatively affects socialization and activities of daily living. Literature revealed that these individuals have an increased likelihood of depression due to difficulties with fulfilling family and societal roles, dependence on others, and limitation of social activities secondary to chronic illness (Dogu & Aydemir, 2018) Limited activity and restricted daily activities due to physiological disorders such as pain, fatigue, insomnia dyspnea, cause inability to meet needs, fulfill family expectations, leading to mental health issues such as anxiety and depression (Dogu & Aydemir, 2018). According to Parto and Levie (2017) a case control study of over 25,000 people in 52 countries, revealed that psychosocial factors have a stronger association with acute myocardial infarction than type 2 diabetes, hypertension, obesity, or smoking alone.

Economic Burden

Chronic conditions like CVD and depression can pose a significant burden in numerous ways including socially, financially, familial and in the workplace. With each chronic condition, a need for specialized treatment arises, a clinician with training in that condition, possible medication changes to ensure optimal treatment, and in a perfect world, follow up with primary care provide, to keep everything organized and to make sure that there are no adverse effects of

specialty medications. In some cases, comorbid depression results in the need for a leave from the workplace (Family and Medical Leave Act, 2021). Cardiovascular disease and depression, both separately and together, are linked to exorbitant healthcare expenses and are the leading causes of morbidity and mortality in affluent countries (Hajat & Stein, 2018). The patient burden is heavy and includes out-of-pocket spending, medication adherence, incapacity to work, symptom control, and a high toll on caregivers (Hajat & Stein, 2018).

Recognition of Depressive Symptoms in CVD Patients

Recognition of depressive symptoms in general medicine practitioners is lacking. Mensah and Collins (2016) states that “fewer than half of patients with depression and chronic conditions such as CVD are recognized by non-psychiatric physicians as being depressed”. Jha, Qamar, Vaduganathan, Charney, and Murrough (2019) found that only 11% of CVD patients with depressive symptoms received adequate care for their depression along with treatment for their CVD condition.

In some cases, the presentation of depressive symptoms in CVD patients are reduced to the “cardiac blues” concept (Jackson et al., 2019). Cardiac blues is the concept that most CVD patients experience some form of depressive symptoms, especially following a CVD event requiring hospitalization. These symptoms include fluctuating mood, sadness, hopelessness, withdrawal from social activities, and worry (Jackson et al., 2019). The difference between “cardiac blues” and depression is that the symptoms of “cardiac blues” usually go away after two to three months while depression that will have long-term effects on the health of patient lasts longer or is recurrent (Jackson et al., 2019). Murphy et al. (2016) conducted a study on how health professionals, 92 of which were nurses, were more likely to discuss the mental effects of CVD incidents with patients after receiving training about the effects of depressive symptoms on

the overall health of the patient, including how depressive symptoms can decrease positive outcomes of CVD patients.

Though depressive symptoms are known to impact health outcomes of CVD patients, according to Carroll et al. (2020), there is difficulty in determining when depressive symptoms begin affecting the patient to the point their health outcomes are affected. In other words, Carroll et al. (2020) discusses how depressive symptom patterns are different for every patient and while some patients may experience persistent depression, others may have periods of remission of their depressive symptoms. Carroll et al. (2020) concludes with the idea that patients should be continuously monitored for depressive symptoms and depression screening should become part of primary care and hospital protocol for CVD patients.

Depression Screening in Hospital Admission

Screening for depression using evidence-based screening tools does not necessarily result in a depression diagnosis. Many of the authors of the literature in the review of depression screening in CVD patients mention the need for further assessment and in some cases referral to psychiatric specialists for diagnosis and the need for collaborative care (Jha, Qamar, Vaduganathan, Charney, & Murrough, 2019; Hurley et al., 2017; Armstrong et al., 2017; Seecheran et al., 2020).

Westas et al. (2020) mention that the reasons for the lack of recognition of depressive symptoms in a non-psychiatric setting such as a cardiac unit can range between lack of time in focusing on depressive symptoms to not understanding the link between CVD and depression. In the same study, Westas et al. (2020) also mention that CVD patients themselves either do not recognize the symptoms of depression, pass them off as symptoms of their chronic condition, or ignore the symptoms for fear of stigma and shame. A study was conducted focusing on the CVD patient experience with 20 Swedish patients asked about the ways in which their clinicians

addressed their depressive symptoms. The article does not mention specific depressive symptoms but does mention participants telling their clinicians they felt they were in psychological distress. Three themes were found: patients not feeling as if the physician saw them as a whole person, ignoring or denying the depressive symptoms, and not receiving referrals for psychiatric help (Westas et al., 2020).

Another issue found in the literature review is in utilization of one tool over another, and lack of crossover. A large portion of the literature on the benefits of depression screening protocols and recognizing depression in CVD patients comes from self-report questionnaires (Ishak et al., 2020). However, a study of 727 adult medical inpatients revealed that a total of 116 patients screened positive for suicide risk, but 36 screened negatively for depression through self-report (Mournet et al., 2021). That same study found 175 patients screened positive for depression and through interview, 73 of those patients were found to be at risk for suicide but had not answered the self-report questionnaire honestly and the questionnaire found them to be low suicide risk. Self-report questionnaires cannot be solely relied upon, as patients do not always answer the questionnaires honestly.

Healthcare Mnemonics and SIG-E-CAPS

Mnemonics have been successfully utilized across the healthcare spectrum to aid in the retention of information. Using a mnemonic tool gives the brain a code to trigger when remembering a set of information and can be especially useful when retaining information in a specific order (Peters, Moussawi, & Rao, 2018). A 2019 quality improvement project utilizing a mnemonic to aid in sleep quality improvement resulted in a 72% compliance rate, demonstrating improved sleep quality (Tang, et.al., 2019). A mnemonic focused on testing for clostridium difficile infections (C.Dif) rates was 41% effective at reducing the rate of hospital acquired C. Dif. in 2020 (Jefferson, Lo, & Oriola, 2020). SIG-E-CAPS is a healthcare mnemonic, created in

the early 90's to assist medical students in memorizing the 8 hallmark signs of major depressive disorder during an initial screening (Kadiyala, 2020). The individual letters stand for (S)uicidal thoughts, (I)nterests decreased, (G)uilt, (E)nergy decreased, (C)oncentration decreased, (A)ppetite disturbance, (P)sychomotor changes, and (S)leep disturbance. The SIG-E-CAPS mnemonic has been recognized by the World Health Organization and has been cited in multiple medical school textbooks (Kadiyala, 2020). If used with regularity, this mnemonic can help clinicians to identify individuals who may require further evaluation for comorbid depression (Peters, Moussawi, & Rao, 2018).

Health Care Documentation

Consistent and clear documentation is essential to safe and effective medical care. Communication between clinicians regarding patients is often done through the medical chart. The literature revealed it is widely acknowledged among clinicians that medical chart is the primary medium for communication regarding patient health, and care (Ng, 2017). Medical charts maintain the records of assessment, tests conducted and ordered, past medical history, diagnoses and treatment plans (Ng, 2017). The extensive utilization of medical charts as communication is the reason for standardization of format in clinical documentation (Ng, 2017). The literature shows that standardization and consistency help the clinician to know where to look for accurate and up to date patient information (Ng, 2017). Clear documentation is not only integral to clinician communication, but also for billing purposes. Multiple reports have revealed that accurate documentation is a necessity for quality patient care and billing (Mohammed, et.al., 2021; Howard, & Reddy, 2018). The Centers for Medicare and Medicaid Services (CMS) mandate documentation requirements for hospital billing (Mohammed, et.al., 2021). Clinical Documentation is used to assign a diagnosis code to the patient chart, using the International Classification of Diseases, 10th Revision (ICD-10). The

ICD is used internationally in documenting diagnoses and procedures and was created with the goal of having every healthcare provider document in a universally understandable language. These codes are carried through the chart, based on the documented History and Physical (H&P), Physical Exam (PE), clinical decision making and treatment, and ongoing Assessment and Plan (A&P), to create a final bill (Howard, & Reddy, 2018).

Governing Bodies and the Financial Impact of Documentation

The Centers for Medicare & Medicaid Services (CMS) is part of the Department of Health and Human Services (HHS), and one of its many roles is the task of regulating the documentation and billing guidelines followed by clinicians (CMS, 2021). In the hospital setting, clinical documentation, Electronic Health Record (EHR) usage and billing fall under the department of Healthcare Information Management (HIM). The American Health Information Management Association (AHIMA) is the organization that promotes business and clinical use of the EHR, certifies HIM professionals, educates clinicians on clinical documentation (AHIMA, 2021). Diagnoses and objective clinical findings have been used by CMS since 1984, to track and trend the Severity of Illness (SOI) and the Risk of Mortality (ROM) of the patient (CMS, 2021). SOI and ROM are numbers on a scale of 1-4, telling CMS how ill a patient is, with 4/4 being the most severe/highest risk. Every diagnosis written by a clinician has the possibility of increasing the SOI/ROM (CMS, 2021). In clinical documentation, depression contributes to the SOI. An increased SOI can justify a higher number of days that a patient is admitted to the hospital, called Length of Stay (LOS) which can increase the amount of money a hospital is paid for that admission (Fontaine, 2020).

CMS released a decision memo in 2011, stating that annual depression screening is necessary in primary care for early disease detection and prevention, and require utilization of PHQ2 and PHQ9 depression screening, but they have released no information regarding hospital

admission depression screening (CMS, 2021). At this time, the PHQ2 and PHQ9 cannot be used in inpatient hospital billing (CMS, 2021).

CMS has put in place penalties for hospitals who readmit a patient within 30 days of discharge (Williams, Chung, & Muning, 2017). These penalties lead to payment reduction for hospital stays related to the diagnosis that previously led to inpatient admission. Individuals with CVD and untreated comorbid depression are at an increased risk of medication noncompliance and hospital readmission (Goldstein, Gathright, & Garcia, 2017). In 2014, Cedars Sinai Hospital began utilizing depression screening for all inpatient admissions and saw that early assessment and management helped to decrease the number of 30- and 60-day readmissions and drop LOS by 6.3% in a 3-year period (Danovitch, & Arnold, 2019).

Documentation Education

While high quality documentation is needed to optimize patient care and to accurately bill, there is not a lot of data regarding documentation education among clinicians or students. A 2018 study showed that first year physician residents and third year medical students are responsible for in-patient follow-up and documentation in teaching hospitals (Cadieux & Goldsmidt, 2017). Diligent documentation was found to be directly related to relationship with attending physicians and attitudes of the attendings (Cadieux & Goldsmidt, 2017). However, there was no mention in the literature of attending physician clinical documentation. While medical students spend a significant amount of time learning how to obtain and perform history and physicals, which include physical exams, assessments, and plans, there was no published data on medical students being educated about documentation in relation to billing as of 2018 (Howard, & Reddy, 2018). The literature also asserted that an educational intervention along with introduction to a documentation template could have a positive effect on documentation and revenue generation (Mohammed, et.al., 2021).

III. Purpose and PICO Question

Purpose

The primary objective of this Quality Improvement (QI) project is to increase knowledge and understanding of the bidirectional relationship between CVD and depression, and the importance of early assessment and documentation in inpatient admission. Quality Improvement initiatives are focused on improving processes and outcomes, so consideration of quality improvement and the approaches in which implementation science is used to influence these outcomes is essential. (Moran, Burson, & Conrad, 2017). Through the education of the hospitalist team, and other related healthcare professionals, the significance comorbid depression plays on individuals' daily lives, financial impact and overall health, may lead to a heightened understanding of the importance of early assessment, and management. This increase in knowledge and understanding may greatly affect behaviors towards early assessment and documentation, leading to improved whole patient centered care and positive changes in individual health outcomes.

PICO Question

For a hospitalist team working with cardiac patients, will an educational intervention program consisting of the benefits of including an evidence-based protocol to identify patient's depressive symptoms, document finding and monitor management lead to changes in their knowledge, attitudes and behaviors compared to not having an intervention?

The objectives of the DNP project are:

1. Develop a protocol utilizing the SIG-E-CAPS mnemonic to improve recognition of depression in patients with CVD for consistent documentation during hospital admission.
2. Develop an evidence-based, educational training to provide training on the use of SIG-

E-CAPS to recognize depression and the importance of documenting the symptoms during hospital admission assessment.

3. Analyze hospitalist knowledge about the importance of recognizing and documenting depressive symptoms in CVD patients before and after educational training using pre- and post-intervention surveys.

4. Disseminate findings of quality improvement DNP project to project site administrators for further use of the educational training after the completion of the project.

IV. Definition of Terms

Hospitalist: An inpatient clinician working in a hospital, in charge of managing patient treatment, care, and referrals to other medical specialties. The hospitalist team consists of attending physicians, physician residents, fellows, Advanced Practice Registered Nurses (APRN's), Physician Assistants (PA's), and medical students. **Protocol:** An established procedure or rule system governing practices pertaining to each individual unit. This QI project will address admission documentation protocols on a cardiovascular unit of a large public hospital.

Clinical Rounds: Daily team meeting to discuss the care and management of newly admitted patients, established patients, and discharge plans.

Mnemonic: An aid using a pattern of letters, ideas, or associations to assist in memorization

V. Theoretical Framework and Conceptual Model

Theoretical Framework

The theory of bureaucratic caring is a mid-range theory developed by Dr. Marilyn Ray and first appeared in print in 1981. The theory began as a grounded theory while investigating the

ways in which nurses demonstrate caring while working in complex hospital systems and healthcare organizations. According to Turkel (2007), Dr. Ray found that healthcare professionals including nurses often had difficulty in balancing the needs of the patient as well as the bureaucratic structure of the organizations. Through her research and observations, Dr. Ray determined that bureaucratic caring was holographic, meaning that the “whole and the part are interconnected” (Turler, 2007). The care a patient receives from the healthcare professionals is directly related to the bureaucratic system of the hospital system including what is and is not part of the standard protocols related to specific units and conditions (Turler, 2007). In turn, the care given to patients that result in positive outcomes could help influence new protocols to care for future patients.

The following are the major concepts of the theory of bureaucratic caring relevant to the QI project (Alligood & Mariner, 2010):

- Spiritual-ethical caring – Treating people as whole individuals and not simply as a means to an end or a single condition.
- Educational – Formal and informal educational programs using various forms of media to relay information to health professionals and patients to further their knowledge about a specific topic.
- Physical – The connection between the mind and the body.
- Legal – Caring through the practice of accountability, following current protocols, influencing change to protocols, and the practice of defensive nursing.
- Political – The ways in which different roles among the employees of a healthcare system influence patient care, guidelines, daily tasks, and the views of nursing in the healthcare industry as a whole.

Conceptual Model

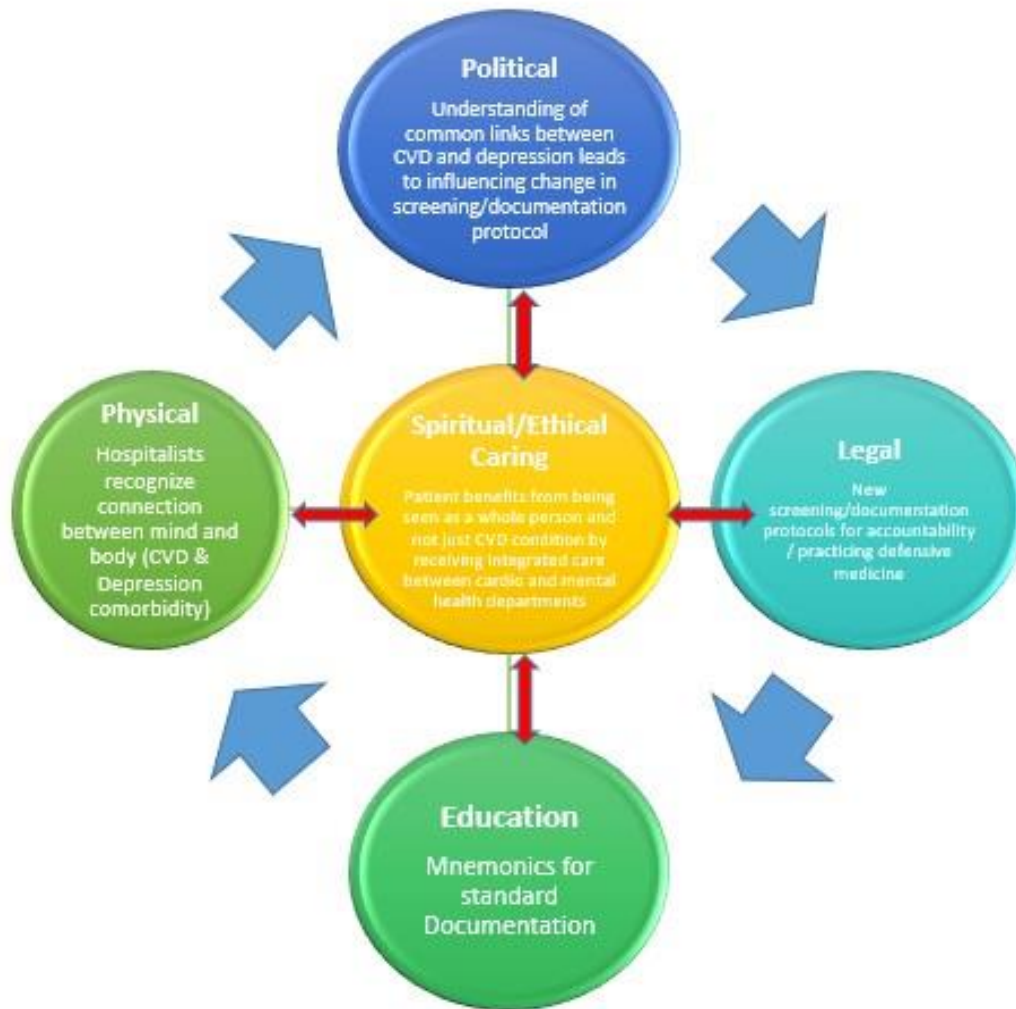


Figure 1 - Conceptual Model

Though the patients at the study site receive adequate care for their conditions upon admission to the hospital, there is no current policy or protocol that requires hospitalists to assess for or document possible current depression upon admission for medical or surgical issues. Using the theory of bureaucratic caring, the conceptual model was created to visualize how the project will lead to increased recognition and documentation of depression symptoms in CVD patients resulting in the patient being seen as a whole person rather than solely by their CVD

diagnosis. The center of the conceptual model explains the ultimate goal of positive patient benefits through the recognition of possible comorbid depression symptoms with CVD conditions. The cycle begins with the evidence-based education seminar presented to hospitalists regarding the relationship between CVD and depression, the importance of screening and documentation. The information provided to participants will help hospitalists understand the important connection between the mind and the body such as the bidirectional relationship between CVD and depression due to inflammation

By heightening awareness and understanding of the mind body relationship between CVD and depression, hospitalists may also see that there is a need for improved depression screening protocols in their CVD admissions. Hospitalists can then begin to discuss the use of screening tools and the efficacy of memory aids like the SIG-E-CAPS mnemonic suggested in the evidence-based education seminar or another depression screening tool they find works better for their unit. The SIG-E-CAPS mnemonic is being used for this QI project to provide an organized and standardized method to assess and document the 8 hallmark signs of depression. Increased documentation of depression symptoms in CVD patients can lead to mental health screenings for other common comorbid conditions related to cardiac health concerns. This leads to better accountability of screening for mental health conditions that may impact the current or future health of the cardiac patients and earlier interventions that can positively impact patient health outcomes. The conceptual model depicts (Figure 1), the cycle of education, physical, political, and legal is never ending when related to the goal of spiritual and ethical caring as seeing the patient as a whole person.

VI. Methodology

Introduction of QI Methodology (PDSA)

The Plan-Do-Study-Act (PDSA) cycle has been chosen as the educational method for this QI project. The PDSA cycle refers to planning, trying, observing, and acting on what is learned when testing a change. This framework is an action-oriented learning strategy utilizing a scientific method. In most industries, including health care, the cycle can provide feedback on what works and what doesn't, as well as the ability to evaluate and test incremental but substantial improvements. (Coury et al. 2017). The cycle is used to define an objective, plan an intervention, study the effectiveness of the intervention, make needed changes, and adopt the intervention if it is found to be efficient, feasible, and effective (Christoff, 2018). The Plan phase of PDSA involves asking questions and setting objectives.

For the QI project, the Plan phase of the QI project discusses project techniques such as study design, sample population, and data collection methods. The Do phase will consist of putting the project into action at the research site while gathering data and analyzing the results. The data acquired from the pre- and post-intervention surveys given to the sample population were analyzed in the Study phase. During the Act phase, the data was analyzed and distributed through a scholarly article and presentation in preparation for the research site's future implementation of the intervention. The results of the cycle will determine whether an educational intervention changed the hospitalist team's knowledge, attitudes and behaviors regarding documentation of depressive symptoms in cardiovascular admissions. The PDSA cycle is iterative, meaning it can be repeated as many times as needed to ensure the intervention improves on the current situation (Christoff, 2018).

Study Design

The study is structured as a pre-test, intervention, and post-test. Many studies examining the effectiveness of an educational intervention in a healthcare setting employ this study design (Alessandri, Zuffiano, & Perinelli, 2017). The design is set up to collect data from different points in time, namely before the intervention and after the intervention. An online preintervention survey was created to test the level of knowledge in hospitalists at the study site of comorbid depression with CVD patients two weeks before beginning the intervention. Following the educational seminar intervention, a post-intervention survey was sent to test changes in clinician knowledge, attitudes, and behaviors regarding recognition and documentation of depressive symptoms in CVD patients upon hospital admission.

Setting

The QI project was conducted at a publicly funded, tertiary teaching hospital. The hospital has a 1,550-bed capacity and is the home base of several research programs. The project focused specifically on hospitalists on the [INSERT NAME OF FLOOR: CARDIAC, ETC] floor of the facility.

Sample

The QI sample population consisted of 25 participants, specifically Physician Attendings (n=9; n=7), APRNs (n=3; n=2), Physician Assistants (n=5), and Physician Residents (n=2; n=1). Six participants chose to skip the job title portion of the pre-intervention survey and five participants chose to skip the job title portion of the post-intervention survey. Of the 25 participants, 25 completed the pre-intervention survey (n=25) and 20 participants completed the post-intervention survey (n=20).

Intervention

The intervention consisted of three 20-minute evidence-based, in-rounds interactive educational seminars using PowerPoint presentation. The educational session took place via Zoom platform, due to the current situation with COVID-19. The session discussed how depression and cardiovascular disease can present with the same symptoms, and how depression is often overlooked in CVD patients. Comorbid depression can lead to a lower quality of life, recurrent cardiac events, and mortality.

The session educated on the bi-directional relationship, importance of early assessment, documentation and management and monitoring of comorbid depression and cardiovascular disease. At this time, there is no protocol regarding mental health assessments for patients admitted to the hospital for a physiological diagnosis. Using a universal mnemonic like SIG-E-CAPS in the admission assessment, can help clinicians to capture early diagnosis, refer to other specialty teams if necessary, and manage comorbid depression.

While not everyone can be expected to attend the seminars, the presentation was emailed to the hospitalist team post seminar, and SIG-E-CAPS cards were left with the team scheduler for placement in the resident house staff booklet. The pre- and post-test surveys were developed by the co-investigator and the intervention was conducted by the project coordinator. Recruitment consisted of an emailed flyer, and physical flyers placed and posted in the rounding room.

The Hospitalist team can be contacted through the team coordinator, or by sending a bulk email to the hospitalist team. The hospitalist team will get recruitment posters, consent forms, and the Survey Monkey link for pre and posttests through email from the Co-investigator.

Data Collection and Analysis

A pre and post intervention survey was created and uploaded to the Survey Monkey website. The surveys were given through emailed link or direct access code for smartphones and PCs that were produced and finished using SurveyMonkey. Each participant will receive the same link or direct access code and was requested to establish their own unique identification code consisting of their mother's maiden name and the month and year of their birth. The pretest was given before the seminar, asking about general knowledge, signs and/or symptoms comorbid CVD and depression, the SIG-E-CAPS mnemonic, understanding of documentation as a communication tool. The same test was utilized by the participants, one week post seminar, through survey monkey. These tests were anonymous as well, and only accessible by investigator. All information was collected and stored in Survey Monkey, and all data was destroyed post collection and analysis.

The survey data was uploaded to GraphPad Prism in the DNP candidate's password protected computer for data analysis. The data from both surveys were scored with a percentage and a mean score was calculated. The scores were organized according to a topic domain and compared for improvement. Scores were analyzed using a paired t-test to compare mean knowledge, attitudes, and behavior values for each category before and after the intervention. Using the paired t-test, p-values were also obtained. An alpha level of 0.05 was used for all statistical tests.

Protection of Human Subjects

To ensure study subjects are aware of their participation in the project, selected sample subjects received a letter describing their expected level of involvement in the project, and that their contribution should take no more than an hour. No part of the educational seminar

conducted during rounds was a requirement to begin or maintain employment at the study site and sample subjects did not receive any repercussions if they choose to withdraw participation from the project. No HIPPA rules were violated as no patient information was used during the project.

The surveys were distributed through emailed link or direct access code for smartphones and PCs, and they were prepared and completed using SurveyMonkey. Each participant was given the same link or direct access code and was requested to construct their own unique identification code using their mother's maiden name and the month and year of their birth. Pre and post tests were anonymous and accessible through Survey Monkey, by the co-investigator and all data was destroyed after utilization for this QI project.

The goal of the project is to improve early identification of comorbid depression in CVD patients by educating hospitalists about the importance of recognizing, documenting, and following up on the presence of depressive symptoms during hospital admission. Though this project focuses on depression as a comorbidity of CVD, the information will be valuable to society by highlighting the ways in which evidence-based supplemental education about the connection between mental health and physical health can increase screenings for depression with other chronic conditions. By increasing screenings for depression in patients with CVD and other chronic conditions, patients have a better chance of receiving integrated care to treat depression which has the possibility of increasing positive health outcomes.

Dissemination Plan

At the conclusion of this project, after results have been scored, an email was sent to the

Hospitalist team members, thanking them for their participation, along with an offer to send results, should any wish to see them. This project was submitted to the Jackson Health System IRB Board and results were submitted according to their direction.

Timeline

After this project proposal was submitted to the FIU IRB and approved, the project was submitted to the Jackson Health System IRB for approval to perform the project in within their system. Upon approval, the following tentative timeline was followed.

The Project was completed over a 3-week period with the first and last week for Pre and posttest. The seminars were scheduled one week apart with the Hospitalist Team Coordinator in the 4 weeks between the tests.

- Week 1: Recruitment invitations, electronic flyers were sent followed by an emailed link to the Survey Monkey website. The invitations will state that this is a voluntary QI project that no monetary compensation would be provided, and all information gathered will remain anonymous. Consent forms were included with the survey, completion of the survey was considered implied consent. Completed surveys were used to hone educational information in the PowerPoint.
- Week 2: The co-investigator will present the educational seminar via zoom, during rounds 3 times over a 9-day period. The PowerPoint presentation was emailed to the hospitalist team members and the co-investigator would be free for any questions or requests for one-on-one sessions. Posttest links were emailed to the seminar participants to be completed. The due date for these tests were set for the following week so that all tests can be compiled and assessed mid-week 3.

- Week 3: All surveys were gathered and scored by the co-investigator. After the scoring and compilation of results, all test data was destroyed.

Benefits

For the QI project participants, the anticipated benefits are an increased knowledge in the recognition of the link between CVD and depression, the need for clear and consistent documentation of depression symptoms in CVD patients, and the management of depressive symptoms to improve the quality of life for CVD patients. Overall, the expected benefits of the QI project are to begin more research into developing a protocol for depression screening and documentation upon admission for CVD-related incidents in CVD patients.

Risks

There was a very low to non-existent level of risk for participants in the QI project. The project included a voluntary educational seminar, pre-intervention survey, and post intervention survey. Because participation in the QI project was voluntary, no participants were at risk of disciplinary action if they chose to not participate in any part of the project. There was no compensation included for participation and all educational seminars and surveys were conducted virtually to minimize the risk of COVID-19 exposure during participation in the QI project.

Do Phase

All parts of the 'Plan' phase were implemented in the 'Do' phase.

Study Phase

The 'Study' phase will involve analysis of the data.

VII. Results

The QI project was intended to increase the knowledge of cardiac hospitalists regarding the common comorbidity of CVD and depression. In addition, the project also intended to increase the knowledge of project participants regarding the need for clear and consistent documentation of depressive symptoms through depression screenings given upon admission. Lastly, the Qi project aimed to educate participants of the benefits and ease of a mnemonic tool, such as SIG-E-CAPS, to remember questions to ask patients concerning possible depressive symptoms for a quick screening that does not take up much additional time during admission.

The DNP candidate invited 26 personnel to participate in the project through an email invite. Of the 26 invited, 25 participated in the pre-intervention survey and educational seminar while 20 participants completed the post-intervention survey.

Demographics

Pre-Intervention Sample

In the demographics portion of the survey, there were inconsistencies in the questions participants chose to answer. For that purpose, percentages are discussed using the results of those who chose to mark answers to the related questions. Of the 25 participants in the pre-intervention survey, 10 (45.45%) participants identified as female, 9 (40.91%) identified as male, and 3 (13.64%) preferred not to answer. Most of the participants indicated they ranged between the ages of 31 and 40 (78.95%) while the smallest age group was 41 to 50 with 1 participant selecting that choice. Six participants (27.27%) identified their ethnicity as Black, 4 (18.18%) identified as Caucasian, 7 (31.82%) identified as Hispanic, and 5 (22.73%) indicated they preferred not to answer the question. The occupations of the participants were 9 (47.37%)

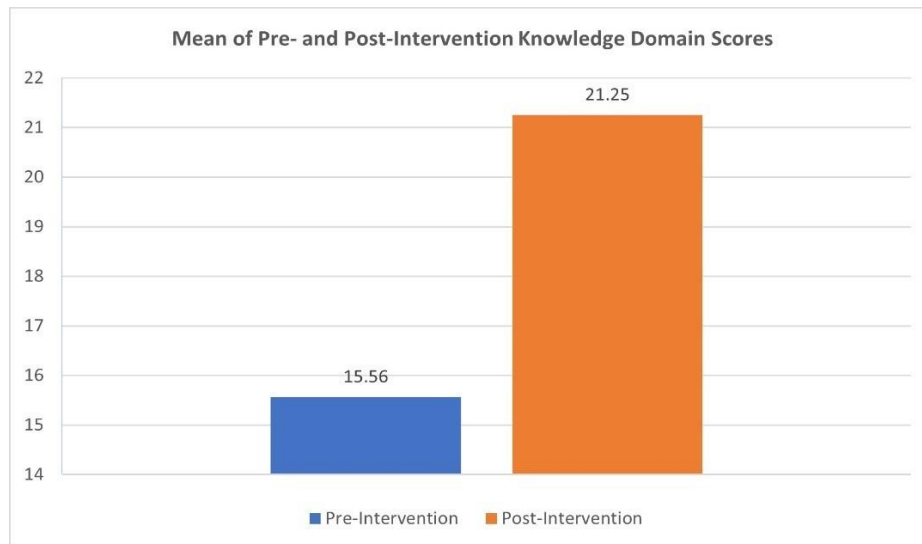
Physician Attendings, 3 (15.79%) APRNs, 5 (26.32%) Physician Assistants, and 2 (10.53%) Physician Residents. Six participants chose to skip the question. Eighteen (75%) participants indicated having more than 10 years' experience in the medical profession, 2 (8.33%) indicated 5 to 7 years, and 4 (16.67%) indicated they preferred not to answer the question.

Post-Intervention Sample

Of the 25-pre-intervention survey and educational seminar participants, 20 (80%) completed the post intervention survey. All 20 participants chose to answer all questions in the demographics portion of the survey except for the job title question in which 5 participants skipped. The percentages of that question are discussed using the result of those who chose to complete the question. Of the 20 participants in the post-intervention survey, 8 (40%) participants identified as female, 7 (35%) identified as male, and 5 (25%) preferred not to answer. Most of the participants indicated they ranged between the ages of 31 and 40 (80%) while the smallest age group was 41 to 50. Five participants (25%) identified their ethnicity as Black, 3 (15%) identified as Caucasian, 5 (25%) identified as Hispanic, and 7 (35%) indicated they preferred not to answer the question. The occupations of the participants were 7 (46.67%) Physician Attendings, 2 (13.33%) APRNs, 5 (33.33%) Physician Assistants, and 1 (6.67%) Physician Resident. Fifteen (75%) participants indicated having more than 10 years' experience in the medical profession, 2 (10%) indicated 5 to 7 years, and 3 (15%) indicated they preferred not to answer the question. While five pre-intervention survey participants chose not to complete the post-intervention survey, the data did not suffer much of a change as far as demographics.

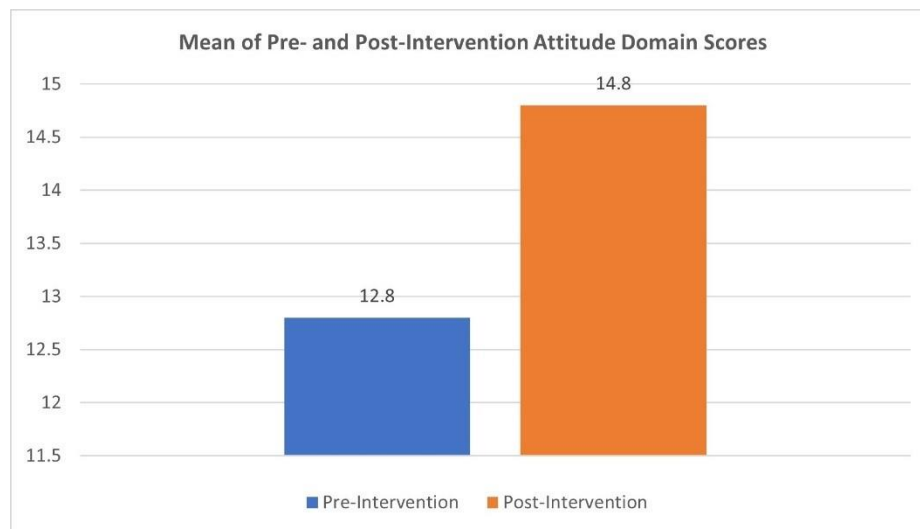
Pre- and Post-Intervention Results of the Knowledge, Attitudes, and Behaviors

Knowledge



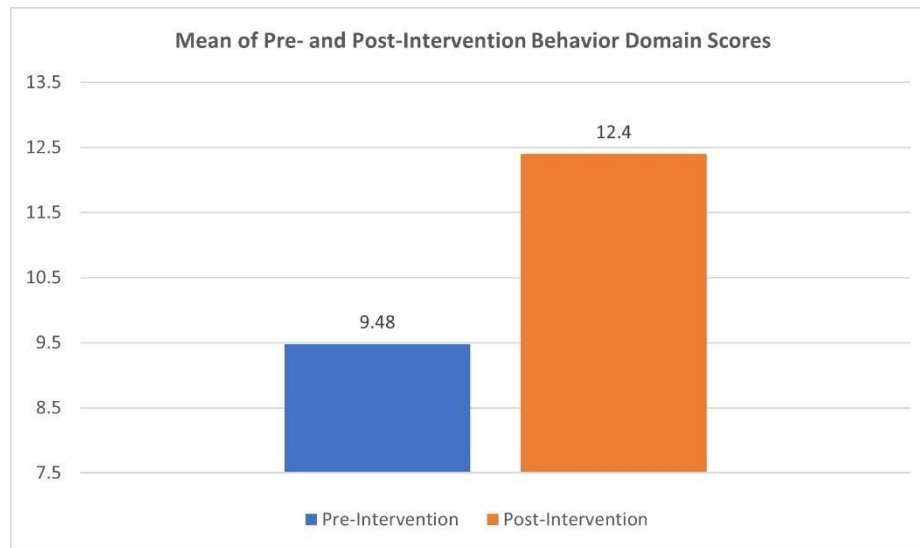
Two-Tailed Paired Samples *t*-Test of Knowledge Domain. The scores of the five questions in the knowledge domain were combined for each participant. A two-tailed paired samples *t*-test was performed to analyze the data from the knowledge domain of the pre- and post-intervention surveys. The result of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, $t(19) = 7.118$, $p < .0001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean scores of pre- and post-interventions was significantly different from zero.

Attitude



Two-Tailed Paired Samples *t*-Test of Attitude Domain. The scores of the four questions in the attitude domain were combined for each participant. A two-tailed paired samples *t*-test was performed to analyze the data from the knowledge domain of the pre- and postintervention surveys. The result of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, $t(19) = 5.050$, $p < .0001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean scores of pre- and post-interventions was significantly different from zero.

Behaviors



Two-Tailed Paired Samples *t*-Test of Behaviors Domain. The scores of the three questions in the behaviors domain were combined for each participant. A two-tailed paired samples *t*-test was performed to analyze the data from the knowledge domain of the pre- and post-intervention surveys. The result of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, $t(19) = 8.775$, $p < .0001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean scores of pre- and post-interventions was significantly different from zero.

VIII. Discussion

The results of the post-intervention surveys showed significant improvement in participant knowledge, attitude and behaviors during patient interaction concerning the links between CVD and depression, recognizing depression in patients without documented symptoms on charts, utilizing mnemonics to screen for depression, as well as the benefits and importance of consistent documentation.

There were similarities found in the literature and the pre-intervention survey results. Westas et al. (2020) discuss that depressive symptoms are often not treated in CVD patients due to lack of understanding the link between CVD and depression as well as lack of time to screen for depressive symptoms. In the pre-intervention survey, 36% of participants selected a 2 out of a scale of 1 to 5 in confidence level with 1 indicating not confident at all and 5 very confident, indicating they were not confident in their training regarding CVD and depression. In the postintervention survey results, 40% of participants somewhat disagreed they had adequate time to screen for depression upon admission of CVD incidents. After the educational intervention that included a discussion about SIG-E-CAPS, the mnemonic that simplifies the screening process, the post-intervention results showed that 55% of participants agreed they do have the time to screen for depression upon admission.

Confidence levels in the ability to recognize depressive symptoms in CVD patients rose from mid-range confidence (36%) to somewhat confident (60%). Despite 68% of participants agreeing that depression screening is important and 48% participants agreeing consistent depressive symptom documentation is a necessary practice at the study site in the preintervention survey, pre-intervention results showed that 52% of participants sometimes stop and ask a patient to elaborate when mentioning a sign or symptom indicative of depression. In the post-intervention survey, given after the educational presentations, 60% of participants indicated they often stop and ask patients to elaborate more when hearing a sign or symptom of depression. Similarly, Murphey et al. (2016) found that health professionals were more likely to discuss mental health challenges, including depression, with patients after receiving training about how mental health can affect positive and negative outcomes after CVD incidents.

Mohammed et al. (2021) discusses that accurate documentation is essential to quality patient care and prior to the intervention, participants agreed with 96% indicating that standard and consistent documentation will assist in patient-centered care. However, prior to the intervention, 48% of participants showed they only “often” utilize patient documentation to better understand their patient. In the post-intervention survey, the participants who indicated they “often” utilize patient documentation to better understand their patients decreased to 15% while 85% of participants indicated they always use documentation to better understand their patients.

Regarding mnemonics and SIG-E-CAPS, 44% of participants indicated they sometimes use mnemonics and tools to ease the process of documentation. However, it is unclear what mnemonics and tools were used prior to the intervention as 40% of participants indicated somewhat not confident in the knowledge of SIG-E-CAPS in the pre-intervention survey and only 20% indicated a mid-range confidence understanding the mnemonic. In the post-intervention survey, 45% of participants indicated being somewhat confident in understanding SIG-E-CAPS.

At the end of the post-intervention survey, participants were asked if they felt the educational presentations increased their knowledge about the need for depression symptoms in CVD patients, consistent documentation, and the SIG-E-CAPS mnemonic tool. Participants were also asked if they were more likely to use SIG-E-CAPS and document depressive patients in CVD patients even if their facility did not create a protocol to do so. Regarding the increase of knowledge, 85% of participants agreed the educational presentation increased their knowledge and 75% agreed they would be more likely to use SIG-E-CAPS and document depressive symptoms in CVD patients without an implemented protocol.

IX. Limitations

The QI project had several limitations including a small sample size, implementation at one study site, and time constraints. The session was performed via Zoom and PowerPoint Presentation due to the Covid19 global pandemic and site being closed to in person education. The sample size was small and based on the available personnel at the study site at the times scheduled for the educational presentations. The project was implemented at one site and the data collected and analyzed are from a small sample of the total personnel that work with CVD patients around the country. Time was also a limitation for two reasons. The project required approval from the FIU IRB and multiple administrative panels at the study site, which took longer than originally expected. The other time limitation was due to the acute working nature of the clinicians. Hospitalists do not have time to take away from their patients for long in-depth presentations, so creation of a relatively short, interesting session was a necessity.

X. Implications for Advanced Practice Nursing

According to this QI project, hospitalists believe that recognition and documentation of depressive symptoms is important to increase the quality of patient care. Educating personnel about mnemonic tools that can help ease the process of documenting comorbid condition symptoms in CVD patients such as depression. Hospitalists should receive annual training about the effects of depression and the links between depression and other chronic conditions, including CVD. The training should be conducted by psychiatric specialists and specialists in the chronic conditions discussed.

The inclusion of a mnemonic in the Admission History and Physical could be as simple as having the agreed upon mnemonic added into the EMR form H&P that the clinicians use. This would be free as the forms are fluid and changeable within the organization, and the

organization has a clinical informatics team in place, dedicated to working with clinicians and the information technology team, to create optimal EMR systems. As this QI project was performed at a teaching hospital, the inclusion of this depression screening in admission would be educational and inform the future practice and habits of students, resident clinicians, and attending physicians.

The SIG-E-CAPS mnemonic is a tool that hospitalists can use to assess a patient's symptoms to determine if they are in need of further psychological evaluation for depression in a manner that does not seriously impact the time of the patient nor the staff member. However, it is important that hospitalists are given the time to discuss mental health symptoms with patients who mention them to determine if the patient would benefit from psychiatric evaluation for depression to increase the positive outcome for their CVD condition. SIG-E-CAPS should be worked into a protocol used with CVD patients to standardize the documentation of the presence or no presence of symptoms in patients.

The use of clear and consistent documentation of depression symptoms is not beneficial in only CVD cases. Several other types of chronic conditions have risk factors of higher incidents of depression such as diabetes (Merschel, 2020). Ensuring that mental health screening and care becomes part of a protocol used during the admission of patients with chronic conditions is a way in which healthcare providers can continue to raise the quality of patientcentered care.

XI. Conclusions

Consistent documentation of mental health conditions in person with chronic diseases is essential in early detection, referral to needed services, and treatment to increase positive outcomes. Depression is a mental health disorder which is comorbid in many different chronic

illnesses, specifically cardiovascular disease. The presence of depressive symptoms can lower the quality of life in CVD patients and contribute to decreased motivation in the patient to care for their health at home which can increase the risk of CVD incidents in the future. The admission process is an opportune time to screen patients for depressive symptoms needing further assessment by using quick and reliable mnemonic tools such as SIG-E-CAPS. SIG-E-CAPS can assist hospitalists in remembering the symptoms to listed by the patient as well as questions to ask the patient during admission that may trigger the need for psychiatric services to treat the possible presence of comorbid depression and decrease readmission rates.

The study found that educational presentations detailing the link between CVD and depression, explaining the SIG-E-CAPS mnemonic, and reiterating the need for consistent documentation has positive effects on cardiac hospitalist knowledge, attitudes, and behaviors regarding the need for depression screening and documentation upon admission for CVD patients. After education presentations on the subject, participants in the study were more likely to recognize the need to stop and ask patients to elaborate on depressive symptoms described during admission and are more likely to use the SIG-E-CAPS mnemonic even without a protocol put in place by the facility. Understanding the impact mental health has on the physical health of the patient and ensuring that patient symptoms are documented is the first step in developing better protocols for patient-centered and holistic care.

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XIII. Appendices

Appendix A

Survey Instrument

Survey Questions

Demographics

Please circle all that apply:

1. What is your job title?

Physician APRN Physician Physician Intern Assistant Fellow
Resident

2. What is your gender?

Woman Man Non-Binary Prefer not to answer

3. What is your ethnicity?

Black Caucasian Hispanic Asian Other Prefer not to answer

4. How many years of experience do you currently have in the healthcare profession? One or less 1 – 5 years 5 – 10 years More than 10 years Prefer not to answer

5. What is your age group?

20-30 31-40 41-50 >51

Knowledge

Using the scale 1 to 5, with 1 as “Not at all confident” and 5 as “Extremely confident” please answer the following:

6. My level of training regarding CVD and depression is adequate.

1 2 3 4 5

7. I can recognize depressive symptoms in a CVD patients not admitted for depression.

1 2 3 4 5

8. I understand the effects of depression on health outcomes of CVD patients.

1 2 3 4 5

9. I know and can use the SIG-E-CAPS mnemonic tool to screen CVD patients for depressive symptoms upon admission.

1 2 3 4 5

10. I am comfortable documenting depressive symptomatology in admission assessments.

1 2 3 4 5

Attitudes

Please choose the answer that best fits your beliefs for the following:

11. I have enough time with patients to screen for comorbid conditions such as depression upon admission.

Somewhat Agree Somewhat Disagree agreedisagree

12. Screening for depression is important to increase health outcomes for patients, even if they have no documented history of depression.

Somewhat Agree Somewhat Disagree agreedisagree

13. Consistent admission documentation of depressive symptoms in CVD patients is a necessary protocol at this facility.

Somewhat Agree Somewhat Disagree agreedisagree

14. Standard and universal documentation will promote consistency and assist in patient centered care.

Somewhat Agree Somewhat Disagree agreedisagree

Behaviors

Please choose the answer that best fits your beliefs for the following:

15. When a patient states signs/symptoms of comorbid depression, I stop and ask them to elaborate:

Never Not Often Sometimes Often Always

16. I consistently utilize previous documentation to better understand my patient.

Never Not Often Sometimes Often Always

17. I use tools and mnemonics to ease the task of documentation:

Never Not Often Sometimes Often Always

Appendix B



CONSENT FORM

Improving Utilization and Documentation of Hospital Admission Depression Screening in

Hospitalists: A quality improvement project

Hello, my name is Kimberly McNeese. You have been chosen to be participate in a quality improvement project for Jackson Memorial Hospital.

SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of the study is to improve admission assessment and documentation of depressive symptoms in cardiovascular disease admissions using a common mnemonic.
- **Procedures:** If you choose to participate, you will be asked to participate in a pre test, brief educational session, and a post test.
- **Duration:** This will take no more than an hour of your time.
- **Risks:** The main risk or discomfort from this research is adding another task into your admission history and physical.
- **Benefits:** The main benefit to you from this research is using a universal mnemonic to assess, diagnose, and manage depressive symptoms in cardiovascular patients from admission.
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

PURPOSE OF THE PROJECT

The purpose of the project is to investigate the impact of an educational intervention for healthcare providers to improve assessment and documentation of depressive symptoms in cardiovascular disease admissions.

NUMBER OF PARTICIPANTS

If you decide to be in this project, you will be one of approximately 25 healthcare providers at Jackson Memorial Hospital who have been selected to participating in this quality improvement project.

DURATION OF THE PROJECT

This project will run for about 4 months. Participation in this study will take no more than one hour of your time. This will include completion of the pre and posttest questionnaires (ie. 15-20 minutes each), 1 classroom style educational session via zoom, and an educational handout.

PROCEDURES

If you choose to participate in the project, I will ask you to do the following things:

1. Complete the pre-test questionnaire
2. Attend an educational intervention that will be 15 to 20 minutes long
3. Read an educational handout provided during the intervention
4. Complete the post-test questionnaire one week after participation in the intervention

RISKS AND/OR DISCOMFORTS

Participants may experience minimal if any risks, harms, or discomforts though participation in this project. This project is aimed at educating clinicians on hallmark signs of depression that can be overlooked in the admission of a cardiovascular event. The goal is to enhance admission assessment and documentation. Changes in documentation upon patient admission may seem complex at first and uncomfortable.

BENEFITS

There are various foreseeable benefits for participation including increased knowledge regarding assessment, documentation management depressive symptoms in cardiovascular disease patients upon admission to JMH. It is expected that this project will benefit society by improving early

capture and management of depression in cardiovascular disease. This would ultimately improve the treatment and outcomes for this population in the society.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this study. Any significant new findings developed during the course of the project which may relate to your willingness to continue participation will be provided to you.

CONFIDENTIALITY

The records of this project including the pretest and posttest questionnaire will be kept private and will be protected to the fullest extent provided by law. In any sort of report, we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely, and only the project team will have access to the records. However, your records may be inspected by authorized University or other agents who will also keep the information confidential.

USE OF YOUR INFORMATION

Your information collected as part of the project will not be used or distributed for future research studies even if identifiers are removed.

COMPENSATION AND COSTS

There is no cost or payment for participating in this project.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this project is voluntary. You are free to participate in the project or withdraw your consent at any time during the project. You will not lose any benefits if you decide not to participate or if you quit the project early. The investigator reserves the right to remove you without your consent at such time that he feels it is in the best interest. Please carefully read the entire document before agreeing to participate. You may keep a copy of this form for your records.

INVESTIGATOR CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this quality improvement project you may contact Kimberly McNeese at kmcne008@fiu.edu; or Dr. Deana Goldin at (305) 348-2958, degoldin@fiu.edu.

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights of being a subject in this quality improvement plan or about ethical issues with this project, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this project. I have had a chance to ask any questions I have about this project, and they have been answered for me. I understand that I will be given a copy of this form for my records.

Signature of Participant

Date

Printed Name of Participant

Signature of Person Obtaining Consent

Date

Appendix C

IRB Approval

Letter



FLORIDA
INTERNATIONAL
UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 414

MEMORANDUM

To: Dr. Deana Goldin
CC: Kimberly Meneese
From: Elizabeth Juhasz, Ph.D., IRB Coordinator *EJ*
Date: May 21, 2021
Protocol Title: "Improving Utilization and Documentation of Hospital Admission Depression Screening in Hospitalists: A quality improvement project"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #: IRB-21-0182 **IRB Exemption Date:** 05/12/21
TOPAZ Reference #: 110415

As a requirement of IRB Exemption you are required to:

- 1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
- 2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

Appendix D

Jackson Health System Letter of Support

April 22, 2021

Kimberly McNeese
Jackson Memorial Hospital
Clinical Documentation Improvement
Health Information Management
1611 NW 12Th Avenue
Miami, Florida 33136

Dear Ms. McNeese,

This is to confirm that I have reviewed your request to recruit perspective participants from Jackson Memorial Hospital, for your DNP Quality Improvement study titled, "Improving Utilization and Documentation of Hospital Admission Depression Screening in Hospitalists."

Jackson Health System supports our staff who seek to advance their personal and professional growth as we believe this will be beneficial to our patients, staff and organization in the long run.

This letter serves as our intent to support in your quality improvement endeavors, pending approval from your School's Institutional Review Board (IRB). As this is a proposed quality improvement study, we require a letter stating that this study is exempt based on the definitions provided in the U.S. Department of Health and Human Services Code of Federal Regulations found at 45 CFR 46.102. As soon as you are granted a Waiver of IRB Review from your institution of study, please share with me, and we can proceed with the approval process for you to conduct your quality improvement study at Jackson Memorial Hospital.

I wish you success with the IRB. We are excited to support you in this scholarly work. If there is anything more that I can do, please feel free to contact me.

Sincerely,

Bridgette Johnson, APRN, PhD

Director, Clinical Practice & Regulatory Compliance
Chair, Nursing Research & Evidence-Based
Practice Council (305) 585-8361
Bridgette.johnson@jhsiami.org

Appendix E

Recruitment Flyer



Coffee Talk

An educational seminar about assessing, documenting, and managing depressive symptoms in Cardiovascular admissions

Date: TBA

Time: TBA

Location: Zoom Invitation to be Sent out.

Contact Kimberly McNeese for more information

Email kmcne008@fiu.edu

Phone. 407-694-9928