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ASSESSING READMISSION RISKS IN ADOLESCENT PSYCHIATRIC PATIENTS

by

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Keyamo Makpaminaye Omokuru

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Abstract

Purpose: Assess risk of readmission of adolescent patients to an inpatient psychiatric unit within 30 days post-discharge by using a clinician-rated behavioral health outcome assessment measure to rate psychiatric patient. **Background:** In the United States, approximately 4 million adolescents suffer from mental disorders. When admitted for inpatient psychiatric care, approximately 13% of adolescent mental health patients are readmitted within 30 days, 25% within 1 year, and 81% within 90 days, of inpatient psychiatric admission. **Methods:** An evidence-based quality improvement project that utilized the clinician-rated behavioral health outcome assessment tool called the Health of the Nation Outcome Scale for Children and Adolescent (HoNOSCA). The HoNOSCA measures emotional, personal, physical, social and behavioral problems associated with mental illness in children and adolescent. Data on 168 adolescent patients at a children's' mental health hospital in South Texas were assessed from February 1, 2018 to March 31, 2018. **Outcomes:** Following assessment, the 30-day readmission rate for patients admitted in February and March 2018, decreased to 8.3% and 9.3% respectively, from a 6 month assessment average of 10%. Also, 100% of the registered nurses were trained on using the assessment measure, 80% of admissions were screened, and 50% of patients' scores were reviewed. **Implications for Nursing:** Assessing and identifying patients' readmission risks can help to reduce recurring readmissions and the HoNOSCA is a valid assessment tool suited to assess the type and severity of psychiatric impairment in adolescents that may cause frequent readmissions.

Keywords: HoNOSCA; Risk of readmission

ASSESSING READMISSION RISKS IN ADOLESCENT PSYCHIATRIC PATIENTS

In the United States of America, approximately four million adolescents suffer from mental illness (Bunim, 2014). This is noteworthy because most frequently, childhood mental disorders during childhood, are more likely to persist into adulthood (Chung, Edgar-Smith, Palmer, Bartholomew, & Delambo, 2008; Perou et al., 2013). Also, psychiatric conditions in adolescents lead to negative social stigma and increased risk of suicide (Perou et al., 2013). Between 2006 and 2011, the rate of suicide among youths aged 10 to 19 years diagnosed with mental illness was 4.5 deaths per 100,000 persons, making it the third preeminent cause of death for children and adolescents (Perou et al., 2013).

Patients admitted to and discharged from inpatient psychiatric units are at high risk of being readmitted for inpatient psychiatric care and approximately one in seven psychiatric admissions results in readmission within 30-days of discharge (Vigod et al., 2015). Readmissions are defined as repeat hospitalization within 30-days of a prior inpatient hospitalization (Goldfield et al., 2008). Readmissions create a significant cost-burden to the healthcare system (Goldfield et al., 2008; Yampolskaya, Mowery, & Dollard, 2013), is traumatizing (Cohen, 1994), and negatively affect the patients' lives, their families, and caregivers (Vigod et al., 2015). The rate of psychiatric readmissions is also significant because, readmissions are considered negative health outcomes, are extremely disruptive to the patients and their families from a general clinical and public health perspective (Vigod et al., 2015), and are increasingly used as indicators for the quality of inpatient mental health services received in prior inpatient admission (Byrne, Hooke, & Page, 2010).

The high rate of psychiatric readmissions may be due to early discharge from inpatient care, brief lengths of hospital stays, or from lack of adequate discharge coordination (Vigod et

al., 2015). Early discharge from inpatient facilities is also due to insurance/payer factors- public versus private/commercial- because publicly funded mental health care are largely unmanaged, while private/commercial payers utilize ongoing patient care review, care authorization, and cost authorization practices to minimize costs (Blader, 2004).

Other factors that have been associated with the increased rate of psychiatric readmissions in adolescents are poor parental involvement, living arrangements, and the severity of the mental health diagnosis (Chung et al., 2008). Childhood sexual abuse histories, age of first psychiatric admission or breakdown, and learning disabilities have also been identified as reasons leading to readmissions in adolescents (Chung et al., 2008). Furthermore, issues such as medication and treatment nonadherence and effects of polypharmacy also contribute to the high rate of psychiatric readmissions in the adolescent patient population (Tossone, Jefferis, Bhatta, Bilge-Johnson, & Seifert, 2014).

Statement of the Problem

Approximately 16% of children and adolescents are readmitted within 1 year of discharge from an inpatient psychiatric hospitalization (Chung et al., 2008). Data from Europe, the United States of America, and Canada, indicated that approximately 13% of mental health patients are readmitted within 30-days after discharge from an acute inpatient psychiatric unit (Donisi, Tedeschi, Salazzari, & Amaddeo, 2016). Blader (2004), reported evidence reflecting that over 25% of adolescents' psychiatric inpatient readmissions occurred within 1 year of discharge, but most readmissions (81%) occurred within 90-days post-discharge.

Psychiatric readmission rates remain high despite concentrated efforts aimed at tackling factors such as severe conduct problems, disengaged parent-child relationships, parental role stressors, decreased length of hospital stays, available discharge services, patient personal

characteristics, and severity of the mental health diagnoses known to increase readmissions (Blader, 2004; Chung et al., 2008). Decreases in the average length of inpatient psychiatric hospital stays have led to concerns that inpatient mental healthcare is now a revolving door (Chung et al., 2008). Shorter lengths of hospital stays are associated with increased rates of readmissions (Lakin, Brambila, & Sigda, 2007; Yampolskaya et al., 2013) as are being an older child with more serious mental health problems (Castilla-Puentes, 2008). Identifying frequent psychiatric readmissions could help in evaluating patients' risk and guide the clinician in obtaining specific information about the circumstances related to psychiatric readmissions in order for appropriate interventions to be implemented (Yampolskaya et al., 2013).

Background and Significance

In contemporary healthcare environments, hospital readmission rates are increasingly being used as outcomes measures (Byrne et al., 2010). Measuring outcomes in behavioral health demonstrates quality, ensures effectiveness and efficiency, builds trust in the system, and allows for a systematic approach to improvement in mental health treatment (Bertagnolli, 2013). The Center for Medicare and Medicaid Services ranks readmission as the number two in the top seven outcome measures in healthcare, used to gauge the quality of hospital care rendered (Tinker, n.d.).

Assessing an individual patient's risk for readmission at admission and discharge is an important step in addressing the negative health outcome of readmissions (Vigod et al., 2015). An early assessment of patients risk for readmission is therefore integral to establishing effective individualized discharge planning for the complex treatment needs of adolescent patients with psychiatric illness (Blader, 2004).

Current Practice Assessment

Primary System Assessment

The children and adolescent mental health hospital assessed is strategically located in a conveniently accessible part of San Antonio in a medical center area in the 78229 zip code. Approximately 30,000 people reside within this zip code, with a median age of 30, and 38% of the population in this zip code are married (Best Places website, n.d.). The median household income is \$35,344 and the median home value is \$119,900 (United States Zipcodes website, 2017). The 78229 area code spans a land area of 5.74 square miles which contains 16,311 housing units and 5,014 people per square mile and the community is predominantly White, non-Hispanic (66.7%) (United States Zipcodes website, 2017).

In 2017, 2,220 children and adolescents were admitted and treated in the inpatient psychiatric units, with mood disorders (including bipolar disorders and depressive disorders) and psychotic disorders making up 81% and 10% of the diagnoses respectively. During the primary assessment of the host system, records from January 1, 2017 to September 30, 2017, indicated that 1,730 patients were admitted for inpatient psychiatric care. During this period 228 patients (approximately 13%) were readmitted within 30 days of discharge from an inpatient admission (C. Carver, personal communication, January 16, 2018).

The mental health hospital where the project was implemented is composed of a crisis admission unit and five inpatient units. The patients receiving mental healthcare range in age from 3 to 17 years old. Within 15 minutes of arrival, the crisis admission unit personnel, consisting of either a registered nurse or a social worker complete triage and a crisis screening. Primary referrals to the crisis admission clinic come from school counselors, primary care providers, the San Antonio children's hospital, local police departments when the referrals are

placed on emergency detention, and hospital emergency departments in the local and surrounding areas. The crisis admission unit operates 24 hours a day. During regular business hours (from 8 a.m. to 5 p.m.), one receptionist, four social workers, two registered nurses, one licensed vocational nurse, two mental health technicians, one pediatric psychiatric nurse practitioner, and nine psychiatrists operate the crisis admission clinic. After regular business hours (5 p.m. to 8 a.m.), one receptionist, one social worker, two registered nurses, one licensed vocational nurse, two mental health technicians staff the crisis admission unit with one psychiatrist always on stand-by “on-call” services. A registered nurse or social worker completes the initial crisis screening and triage. The provider (psychiatrist or pediatric nurse practitioner) evaluates the patient, completes a thorough psychiatric assessment, formulates a differential or provisional diagnosis, and makes the determination for either inpatient or outpatient psychiatric treatment.

The five inpatient units are divided into units 1-4. Units 1A and 1B serve male and female patients 12 to 17 years old respectively. Unit 2 serves male patients 8 to 11 years old, unit 3 serves female patients 8 to 11 years old, while unit 4 is a mixed unit serving male and female patients ranging in age from 3 to 7 years old.

For cases requiring inpatient psychiatric admission, the patient is transferred from the crisis admission unit to one of the five appropriate units. The patient may be escorted ambulatory or transported in a wheelchair to the appropriate unit. Upon arrival to the unit, an assigned mental health technician performs a body check for safety and carries out census documentation on the patient every 15 minutes while maintaining a line of sight observation of the patient at all times. The assigned unit registered nurse completes a nursing assessment and the admission checklist for all newly admitted patients and generally directs the nursing care of the patient on

the unit under the supervision of the providers. Within 24 hours of arrival to the appropriate unit, the assigned therapist/counselor or psychologist conducts individual/group/family therapy as indicated, and makes recommendations to the unit nursing staff and psychiatric providers.

Also during this time period, the assigned care coordinator/discharge coordinator/case manager develops the aftercare therapy plan with the patient and family. The care coordinators work from a separate location within the hospital complex and they routinely coordinate their services with the crisis admission unit staff. All new admissions are communicated as soon as possible to the care coordinators but no less than 24 hours after being checked in at the crisis admission unit so that discharge planning can be promptly initiated. The care coordination department has six care coordinators and one supervisor.

Ideally, within 24 to 48 hours of admission, the care coordinator assigned to each patient assesses the patient's and family needs, verifies insurance coverage, coordinates treatment benefits available to the patient and family, and communicates treatment recommendations and availability of resources to the family. The assigned care coordinator also evaluates the family's perception of the current episode of care, coordinates transfer to different levels of care if needed, and coordinates aftercare arrangements and discusses arrangements with the family/legal guardian. In addition, the care coordinators educate the patient and family about community resources, provide education about placement resources if needed, and assist in arranging placement following discharge if needed. The care coordinators also initiate efforts to find community-based social services and other outside resources needed by the family and help to locate psychiatric providers for the aftercare plan, and set up appointments for routine follow up treatment with the patient's current and new providers.

The average length of stay for a patient assessed in the crisis admission unit and admitted to the inpatient unit is between 3 to 5 days depending on the patient's response to therapy and psychopharmacologic treatment. After appropriate psychiatric stabilization, the patient is scheduled for discharge, which is coordinated by the assigned care coordinator in collaboration with the medical and nursing team and the patient and patient's family.

Assessment of the hospital organization through interviews and chart reviews indicate that various presenting problems are at play in frequent psychiatric readmissions of patients. These problems include medication nonadherence, severity of individual patients' mental health diagnosis, negative parental involvement, and increased family stress related to the patient's diagnosis. Other problems observed were failure to follow-up with post-discharge treatment or services, and homelessness or poor living situations. In addition, the patient's inability to cope with school, suicidal ideations, homicidal ideations, brief length of prior inpatient hospital stay without appropriate or complete symptom remission, lack of health insurance to access outpatient psychiatric services, and lack of family understanding of mental illness, may contribute to frequent readmissions.

Other risk factors identified for readmissions at the project site were self-mutilating behaviors, hallucinations or delusions, agitation or psychomotor retardation resulting in an inability to care for self, and severe eating disorders requiring 24 hours a day medical observation supervision and intervention. Furthermore, severe substance abuse disorder (requiring 24 hours a day medical observation supervision and intervention), severely disruptive and other behaviors (which may include runaway behaviors placing the patient at risk of physical, sexual or psychological abuse), and hallucinations or delusions directing patients to harm themselves or others were documented factors that placed patients at risk of readmissions.

In addition, factors noted to cause patient's readmissions include acute onset of psychiatric symptoms, psychosis, clinical deterioration requiring inpatient mental assessment and treatment in a safe and therapeutic psychiatric inpatient setting, and patients requiring medication therapy or complex diagnostic evaluation in situations where the patient's level of functioning prevents cooperation with treatment. Acute onset of psychiatric symptoms requiring emergency intervention ordered by law enforcement or the court was also a notable readmission risk factor recorded from reviews of patient charts. These factors were consistent with factors identified in the literature, such as negative parental influences, daily living arrangements, length of hospital stay, post-discharge services, severity of psychiatric diagnoses, and personal patient characteristics as stated by Chung et al. (2008) that contribute to the psychiatric readmissions of adolescents.

The assessment of the hospital organization included observation and interviews of the psychiatric providers in the crisis admission unit, observation of the care coordinators performing their routine duties, hospital administrative data reviews, observation of patient assessment/interview at admission, review of patients' electronic health records, and by personal communication with the DNP students' clinical mentor.

The mental health hospital as currently constituted does not have a screening tool for assessing at-risk adolescents for readmissions to the inpatient psychiatric unit. The health facility's organizational structure is currently motivated to embrace and accommodate changes aimed at improving the overall health outcomes of the facility. One of the health outcomes being targeted for improvement by the hospital leadership is the high rate of readmissions. According to the DNP student's clinical mentor, the target is to reduce current inpatient readmission rates from approximately 15% to 20% annually to 7.5 to 10% by the end of the 2017-2018 fiscal year.

The primary need assessment of this host system crisis admission unit indicated that from July through September 2017, the 30-day readmission rates ranged between 14% to 17% and the percentage of the monthly readmissions raised concerns necessitating the clinical mentor to approve this quality improvement project.

Secondary System Assessment

As discussed earlier on, this DNP project was carried out in the admission clinic, of a children and adolescent mental health hospital. A secondary assessment of the project site took place from January 16, 2018 to January 31, 2018 prior to the intervention. A retrospective review of the 2017 patient's census data showed that 15% of patients admitted were aged 3 to 7, 40% were aged 8 to 11, and 45% were aged 12 to 17. The ethnic demographics reflected a proportionate breakdown of Hispanic/Latinos (40%), African-Americans (35%), White, non-Hispanic (20%), and 5% classified as other. The total monthly readmission rate for all admitted patients in 2017 was 14% while the total monthly readmission rates for patients aged 13 to 17 during the initial assessment period from July 2017 to December 2017 was 10%.

The staff members needed for this project was the four registered nurses (two registered nurses work weekday shifts and the other two registered nurses work weekend shifts). The registered nurses work under the supervision of the psychiatric providers. One new psychiatric mental health nurse practitioner recently joined the team of psychiatric providers making a total of 11 psychiatric providers. Upon patients' arrival to the admission, the initial crisis screening and triage is completed by the registered nurses. The provider (psychiatrist or nurse practitioner) evaluates the patient, completes a thorough psychiatric assessment, formulates a differential or provisional diagnosis, and makes the determination for either inpatient or outpatient psychiatric treatment. During this secondary assessment period, the procedural steps for the implementation

of this project were reviewed with the registered nurses. This healthcare organization's readiness for change, using an evidence-based tool to assess adolescent patients for risk of readmission, was primarily motivated by the financial incentives that will be provided to staff, if the current yearly readmission rate for all patients' decreases by 50% at the end of the current fiscal year (C. Carver, personal communication, February 6, 2018).

Project Identification

Purpose

The purpose of this project is to introduce and implement the use of an assessment measure to assess patients upon admission to a psychiatric facility for risk for readmission in 100% of adolescent patient admissions during the duration of this project.

Objectives

1. Hospital readmissions of adolescent patients with 30-days of discharge will reduce by 50%.
2. Assess 100% of the target patient population, upon admission, for risk of readmission.
3. Educate 100% of the RNs on the use of the assessment tool.
4. Review 100% of the patients assessment score.

Anticipated Outcomes

1. 50% decrease in the readmission rate when compared to the average monthly readmission rates of the target population.
2. 100% of the patients admitted will be assessed for risk of readmission upon admission.
3. 100% of the RNs will be educated on the use of the assessment measure.
4. 100% of the patients' assessment score will be reviewed during the interdisciplinary team meeting.

Summary and Strength of the Evidence

Efforts aimed at reducing adolescent psychiatric readmissions should target factors such as patients' severe conduct and behavioral problems, impairment, psychiatric symptomatic problems, and social problems (Blader, 2004; Gowers et al., 1999). These factors were identified as predictors of readmission to inpatient psychiatric units for children aged 5 to 12 years recently discharged from acute inpatient psychiatric units (Blader, 2004). The study described by Blader (2004) followed 109 children for 1 year post-discharge from inpatient care. The study result showed that 81% of the psychiatric readmissions occurred in the first 3 months post-discharge and with the clinical findings suggesting that readily obtainable information at the time of admission assessment may provide a useful index for identifying children at risk of readmissions. In addition, Blader (2004) stated that the vital information obtained during the admission assessments can enable clinicians to tackle risk factors during hospitalization and help guide them to use the information to develop post-discharge care aimed at alleviating the problematic factors identified in order to prevent readmissions.

A retrospective archival review by Chung et al. (2008) was conducted on 403 children and adolescents to explore psychosocial factors associated with the psychiatric readmissions of children and adolescent. The evidence showed that identifying psychosocial readmission risk factors such as living arrangements and prior history of psychiatric admission could help guide effective treatment interventions aimed at preventing readmissions.

Geller & Biebel (2006) reported that in the United States, the majority of the six to nine million children and adolescents suffering from some form of mental illness do not receive appropriate behavioral health services due to a sharp decline in available inpatient psychiatric services over the years. The dearth in psychiatric services leads to untreated mental illness and a

high cost to society in both human and fiscal terms (Geller & Biebel, 2006). Therefore, the ability of clinicians to assess psychiatric patients at high risk of readmissions can go a long way in guiding clinicians to focus scarce psychiatric services on identified high-risk patients.

The study by Yampolskaya et al. (2013) showed that the timing of service provision was crucial for preventing readmissions into children's inpatient mental health treatment programs. The study included 1,432 children with a mean age of 13.83 years admitted to Florida's statewide inpatient psychiatric program. Their findings underscored the importance of timely connections with post-discharge services after assessing and identifying at-risk youths, in order to prevent readmissions.

Given the high impact of mental illnesses among youth, there is an urgent need to treat mental illness and to control the debilitating effects caused by chronic mental health conditions among this patient population (Tharayil, James, Morgan, & Freeman, 2012). Appropriate intervention in this regards makes it imperative to identify various biological and psychological factors in teens that could cause and exacerbate mental illness and invariably lead to frequent inpatient psychiatric readmissions (Tharayil et al., 2012). Determination of the factors associated with frequent inpatient psychiatric admissions in teens could go a long way in formulating effective strategies for intervention aimed at preventing readmissions (Tharayil et al., 2012). Preventing adolescent readmission to mental health facilities can therefore be regarded as one of the ways through which health professionals can intervene to address the problem of psychiatric disorders in adolescents (Tharayil et al., 2012).

Readmission following inpatient hospitalization is an important outcome measure that could be screened for by clinicians (Tinker, n.d.). Thus, since reducing readmission rates in mental health is a desired behavioral health outcome, a tool such as the Health of the Nation

Outcome Scales for Children and Adolescents (HoNOSCA) could be adapted to assess, screen, and predict the likelihood of readmission; because the HoNOSCA is an instrument that measures mental health outcomes with tested sensitivity and predictive validity (Kisely, Campbell, Cartwright, Cox, & Campbell, 2010).

The HoNOSCA was developed to measure behavioral health outcomes for children and adolescents and is regarded as an appropriate tool for monitoring these outcomes (Pirkis, Burgess, Kirk, Dodson, & Coombs, 2005). The HoNOSCA is a brief clinician-rated outcome scale consisting of 13-items (Gowers et al., 1999), see appendix A. The 13-items are designed to capture the difficulties commonly experienced by children and adolescents within psychiatric settings by measuring the wide range of person, physical, and social problems associated with psychiatric illness (Gowers et al., 1999). The 13-items can be summed up to obtain a total score showing the overall severity of the problems encountered (Gowers et al., 1999). Available evidence shows that the clinician rated HoNOSCA items have acceptable interrater reliability making it an appropriate mental health outcome measure (Bilenberg, 2003).

Frequent readmission can then be viewed as a lack of improvement, deterioration, or instability in the patient's mental health (Tharayil et al., 2012). Since the HoNOSCA is sensitive to change as evidenced by the movement of HoNOSCA scores and its performance against other gold standard measurement that specifies improvement, deterioration, or stability, the HoNOSCA measurement outcome can be applied in screening and identifying adolescents patients for high risk of readmission so that appropriate interventions can be implemented (Pirkis et al., 2005). Thus, the HoNOSCA is appropriate for routinely monitoring the health outcomes of children and adolescents, with a view to improving the overall treatment quality and effectiveness of care rendered (Pirkis et al., 2005).

Lee, Martin, Hembry, & Lewis (2017), showed that the HoNOSCA scores can help clinicians understand the mental health problems encountered by the patient thereby guiding clinicians towards the implementation of interventions aimed at preventing negative mental health outcomes such as readmissions. Bilenberg (2013) demonstrated that the HoNOSCA is an easily administrable and valid outcome measure for children and adolescents receiving mental health treatment. Gowers et al. (1999) evaluated the reliability, validity, and acceptability of the HoNOSCA in routine outcome measurement and demonstrated that the HoNOSCA is a reliable and valid measure to assess health outcomes and is a good compromise for general use to be used in assessing outcomes such as readmission.

Methods

Project Intervention

The project intervention was implemented from February 1, 2018 to March 31, 2018. During this implementation period, the HoNOSCA was used to assess 168 inpatient adolescents' psychiatric readmissions. The project included the following elements:

1. From January 16, 2018 to January 31, 2018, training for the registered nurses in the admission clinic regarding this project was conducted.
2. Upon arrival to the crisis admission clinic from February 1, 2018, the registered nurse determined if the patient is between the ages of 13 to 17 by reviewing the patient's demographic data.
3. The patient was placed in one of five observation rooms, for line of sight monitoring for safety purposes, and while pending the arrival of the licensed psychiatric provider. Within 30 minutes of being placed in the observation room, the psychiatric provider performed a crisis screening to determine if the patient will require an inpatient or outpatient level of

care.

4. If determined to meet criteria for inpatient level of care by the psychiatric provider, the admission clinic registered nurse obtained a blank project assessment form (see appendix B) from the DNP student red-colored binder placed at the nursing station. The registered nurse placed the blank project assessment sheet on page one of the admitted patients' charts together with other nursing forms used for routine nursing admission assessments.
5. As part of the routine nursing admission assessment of the newly admitted patient, the registered nurse filled out the blank project assessment form to obtain a total assessment score ranging from 0 to 52, and placed the completed project assessment form in the DNP student blue-colored binder kept in a locked cabinet in the nursing office. The registered nurse placed the completed project assessment form in the correct date tab in the blue-colored binder.
6. Prior to scheduled interdisciplinary team meetings, the registered nurse retrieved the blue-colored binder where all the completed project assessment forms are stored. During the interdisciplinary team meeting the registered nurse read out total assessment scores recorded in #6 above so that the interdisciplinary team can review patients' score and presenting symptoms. The interdisciplinary team then directed the care coordinators accordingly for targeted interventions.
7. After the interdisciplinary team reviews each completed project assessment form, the registered nurse circled the designated spot on the lower right hand corner of the project assessment form to indicate that the assessment score was reviewed. The registered nurse signed or initialed the bottom part of the project assessment form and then placed the reviewed form in the green-colored binder and secured the green-colored binder in a

designated locked cabinet at the nursing office.

8. On a weekly basis, this DNP student reviewed the red, blue, and green-colored binder for data collection.

The project assessment form was used to collect patient's identification number, demographic information (such as age, gender, insurance, and ethnicity), admission status, chief complaints, and the HoNOSCA scores. The HoNOSCA scores reflected the patient's presenting behavioral problems, psychiatric impairment, symptomatic problems, and social problems. Materials used for this quality improvement project include computers, printers, paper, telephone, and three-ring document binders.

Project Evaluation

1. Prior to the registered nurses education, the staffing schedule was reviewed. The two registered nurses working the weekend schedule were trained when they picked up extra weekday shifts on the week of January 16, 2018. All four regular registered nurses working the admission unit were trained in the unit break room.
2. The determination on whether the patient meets the age criteria- aged 13 to 17- for this project was done using the demographic information.
3. Upon arrival to the unit, the registered nurse updated the board tracker to reflect the room where the patients were placed for observation.
4. The admission orders were reviewed to determine if the patients will be admitted for inpatient care. The red-colored binder containing the project's blank assessment forms were retrieved from the designated location in the nursing station.
5. The daily admission census log, the blue colored, and red-colored binders were reviewed weekly.

6. The blue colored and green colored binders were reviewed weekly.
7. The daily admission census logs, blue-colored, and green-colored binders were reviewed weekly.
8. The daily admission census logs, blue-colored, and green-colored binders were reviewed weekly.

Setting/Population

The patient setting/population for this project is a mental health hospital in South Texas that caters to individuals aged 3 to 17 years old. Majority of the patients served in the facility were diagnosed with mood disorders including depression (81%), psychotic disorder (10%), bipolar disorder (8%), and 1% of the diagnoses were classified as other psychotic disorders.

Organizational Barriers and Facilitators

The project implementation was expected to encounter several barriers that may hinder successful adoption at the hospital. Current staff understanding of the HoNOSCA was non-existent at the facility. An identified barrier was that there was no screening tool being used to identify patients at risk of readmission and this led to staff initial resistance on learning the new process. To tackle this barrier, staff training and education on the use of the HoNOSCA as a behavioral health assessment tool to assess adolescent patients, was conducted for the four registered nurses in the admission unit. Another barrier was that the scoring was done using paper charting and not on the electronic health record.

Facilitators for this project were this student's clinical mentor and the lead registered nurse who served as change agents. The clinical mentor gave the DNP student approval to carry out this project in the admission clinic and assisted in granting access to the clinic's resources required for implementing this project. The lead registered nurse in the admission clinic served as a mentor to the three other registered nurses in the use of the newly introduced assessment tool. Another facilitator is the ease of use of the newly introduced behavioral health assessment tool. This is mainly based on the fact that the HoNOSCA was easily accessible, free, and easy to use and understand. Also, the training on the use of the assessment tool took less than 2 hours, which was highly convenient for the staff.

Ethical Considerations

Ethical considerations relating to this project involved submitting an institutional review board application and an approval was received indicating that this project does not meet the regulatory definition of research with human subjects. This DNP student was responsible for ensuring that the patients' data were safe from unauthorized access and use. This student followed the hospital's guidelines for maintaining patient's privacy and confidentiality, by de-identifying all patient data and securely shredding the de-identified patient information at the conclusion of this project. De-identified data were recorded in an excel spreadsheet. This DNP student routinely monitored all data collected. Informed consent forms were not required for this evidence-based project and no direct patient care was involved. All patient information related to demographics, admission status, chief complaints, and assessment ratings were de-identified when reported, and only information pertinent to the project were recorded.

Results

During the duration of this project from February 1, 2018, to March 31, 2018, a total of 168 admissions adolescent inpatient admissions were completed using the newly introduced assessment tool and 15 of these were readmissions. A total of 135 admissions were assessed, representing 80% of the patient population, during the duration of this project.

In February 2018 there were five readmissions, a 17% decrease compared to the project objective of 50%, out of a total of 60 admissions which represented 8.3% of the admissions. In March, 2018, there were 10 readmissions- a 7% decrease compared to the 50% project objective- out of 108 admissions, representing 9.3% of the total admissions. 100% of the registered nurses (four of the registered nurses) were educated on using the assessment tool and 50% of patient's scores (67 patient scores) were reviewed during the interdisciplinary team meeting. See page 28 for Table 1, showing patient characteristics and Figure 1, showing the readmission rates.

Discussion

The average readmission rate for the 2 months duration of this project was approximately 9%. Prior to the project intervention, 10% of the patient population was readmitted, therefore the objective of reducing the readmission rate by half to 5%, was not met. For this project, a behavioral health assessment called HoNOSCA was used to rate patients presenting problematic symptoms in order to obtain an assessment score ranging from 0 to 52. Patient assessments on 80% of the admissions were completed. During this project, 100% of the registered nurses were educated on using the assessment measure and 50% of patient scores were reviewed, during the interdisciplinary team meeting. The aim for the interdisciplinary team review was to collaborate with other members of the interdisciplinary team taking care of the patient. During routine interdisciplinary team meetings, patients' presenting problematic symptoms were reviewed.

Table 1

Patient Characteristics (n = 168)

Characteristic	Mean
Age	14
<u>n (%)</u>	
<u>Sex</u>	
Male	65(39)
Female	103(61)
<u>Ethnicity</u>	
White non-Hispanic	72(43)
Black or African American	59(35)
Hispanic	35(21)
Others	2(1)
<u>Insurance</u>	
Insured	158(94)
Not insured	10(6)
<u>Admission status</u>	
Readmission within 30 days	15(9)
Readmission > 30 days or 1st admission episode	153(91)

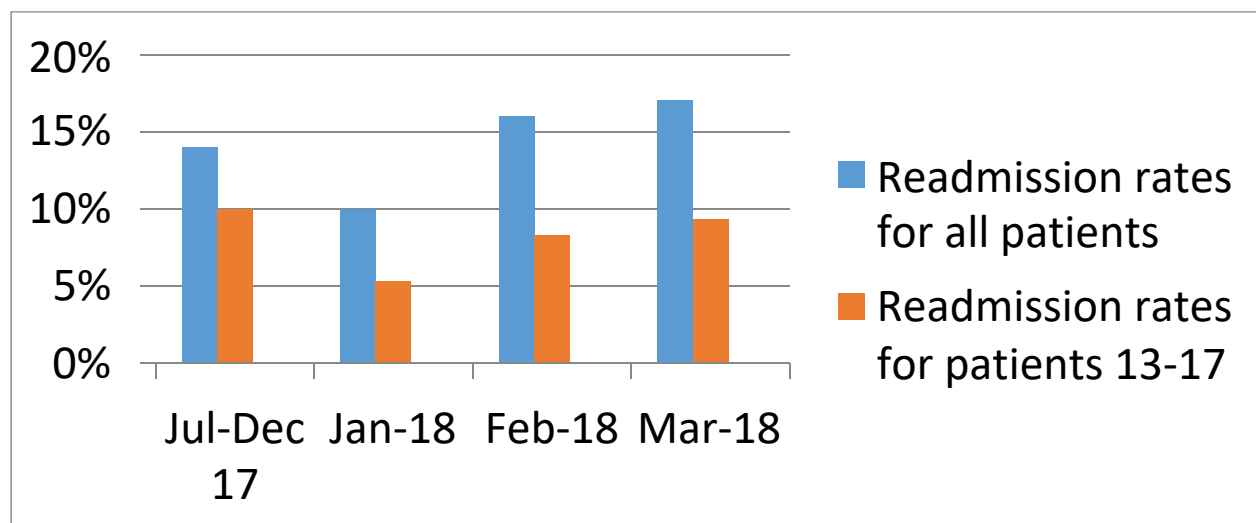


Figure 1. Readmission rates.

For this project, a review of the patient assessment score was added to the other patient issues to be discussed, so that the designated care coordinators could initiate interventions aimed at tackling the problems identified during the assessment. The mean assessment score obtained using the newly introduced assessment for this project was 36.

Lee et al. (2017) noted that the HoNOSCA assessment enabled clinicians to measure physical, personal, and social problems associated with psychiatric illness, so that that targeted interventions can be implemented. Using the problematic symptoms identified as a result of this assessment, the care coordinators-acting as liaison between the patient and patient's family and the facility- formulate targeted discharge or after-care interventions. This targeted intervention strategy can be compared to the study by Oluabunwa et al. (2013) in which designated care coordinators assumed responsibility for guiding patients on post-discharge or follow-up healthcare decisions and provided education related to patients' symptoms. A comparable study by Clarke et al. (2015) utilized care coordinators for patient care with a focus to address patients presenting concerns or problems, so as to avoid unnecessary readmissions.

No major change was observed during the course of the project. However, about a month into the project intervention, registered nurses that were not trained in the use of the assessment tool were pulled from other units to the admission units, thereby having an impact on the number of patients assessed at admission and on the number of assessment scores reviewed during the interdisciplinary team meeting.

The major sustainability activity for this project was designating a registered nurse working the day as the key personnel/change champion/change agent for this product. The lead registered nurse working the day shift from Monday to Friday was utilized as the change agent. According to Newhouse (2007), having designated leader/pilot/key personnel as a point of

contact or super-user for a new project can help in ensuring that the project is successful and sustained.

Other barriers that could affect the project sustainability were staffing needs; for example, when staff that was not trained on the new assessment was pulled to work on the admission unit, lack of time to complete the assessment, and staff perception or attitude regarding the change. For instance, there were complaints about not having enough time to complete the current workload and the addition of increased work by completing the new assessment. There were also concerns relating to attitudinal barriers from staff due to staff perception that they already know what to do. For example, there were complaints before the introduction of the new assessment tool, that patients were before now reviewed in the interdisciplinary team meeting and that including the new assessment scores does not change the fact that after-care services will be initiated. Resistance to change current practice by the registered nurses was the major barrier encountered and the designated super-user helped in breaking down this barrier. The designated pilot registered nurse was therefore considered as the main strength for the project implementation.

Limitations

The first set of limitations encountered were that this quality improvement project did not study the efficacy of the treatment rendered in the inpatient settings, the assessments were not done at discharge to obtain a measure of the change in the patient's scores, and follow-up interventions were not monitored. Likewise, 20% of patients admitted were not assessed and 50% of patient's scores were not reviewed during the interdisciplinary team meetings. This may have had an effect on the project readmission rates because targeted interventions based on presenting symptoms may not have been discussed and fully implemented.

Another limitation encountered was that there was no recommended evidence-based mean score or rating that could be used to determine risks for readmission using the assessment measure. From the literature, there was no mean score used to determine a low, medium, or high risk for readmission, and the focus for intervention entails having a rating of score of “3” or “4” on any category in each section (Gowers et al., 1999), (see appendix 1). A study by Hunt and Wheatley (2009), who assessed 24 adolescents aged 13-18, recommended that interventions should be focused based on domain or section scores rather than the total score. Furthermore, Kisely et al. (2010) concluded that results obtained might not be generalized because of variations in sociodemographic and health service characteristics in different settings.

Only 6% (10 out of 168) of the admissions were not insured and the project was carried out in a private mental health hospital. These were considered limitations because it is unknown if findings obtained in these situations can be generalized to psychiatric patients being treated in a public health system (Byrne et al., 2010). Patient reviews were done in approximately 50% of the admissions. The registered nurses reported that they sometimes, they did not remember to carry the blue binders together with the other stack of papers along with them, to the interdisciplinary team meeting. Additionally, registered nurses from other units were pulled to work in the admission units as needed, and these registered nurses were not educated on the proposed intervention using the newly introduced assessment.

Recommendations

Since the total score obtained represents the summed severity of individual items assessed which can be used to measure outcome (Gowers et al. 1999), studies that can measure patient’s mean scores to determine a low, medium, or high risk of readmission is highly recommended. Another recommendation for the future entails using the HoNOSCA to assess

adolescent patients at admission and discharge in order to obtain a measure of change, which may reflect successful treatment outcomes or other factors. This recommendation is important because according to Lesinskiene, Senina, & Ranceva (2007), a change in the HoNOSCA admission and discharge scores may be useful in evaluating improvement after the inpatient psychiatric treatment.

Finally, it is recommended that assessments be done also on patients less than 13 years old, for ease of comparison. In this way, the patients' sample would consist of two different subgroups, consistent with the study by Byrne et al. (2010) assessing patients' readmissions as an indicator of the quality of mental health services rendered during inpatient care.

Implications for Nursing Practice

The finding from this project suggests that identifying factors associated with psychiatric readmission risks can help to reduce recurring readmissions (Donisi et al., 2016). Another implications for nursing practice is that the HoNOSCA is a clinician rated assessment tool, suited to assess the type and severity of psychiatric impairment in adolescents (Gowers et al., 1999), useful in highlighting possibilities for improving the quality of services provided (Lesinskiene et al., 2007), and appropriate for routinely monitoring health outcomes (Pirkis et al., 2005).

Essential VI of the 2006 American Association of Colleges of Nursing "The Essentials of Doctoral Education for Advanced Nursing Practice" advocates for the doctoral-prepared nurse practitioner (DNP) to be involved in inter-professional collaboration aimed at improving patient and population health outcomes while essential III recommends that the DNP be prepared to generate evidence through their practice in guiding improvements in nursing practice and outcomes of care. By embracing this new assessment tool, the DNP role as an advocate in improving population health outcomes can be achieved as a result of inter-professional

collaboration and scholarly application of relevant findings. Therefore, patient health outcomes could be positively impacted as a result of the DNP's skill in critically appraising existing literature and other research evidence to determine and implement best evidence for nursing practice. Also, interventions aimed at appropriately educating and guiding individuals and groups through today's complex healthcare environment can be enhanced, when the DNP applies effective collaborative skills in conjunction with other members of the interdisciplinary team taking care of the patient.

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Appendix A

HoNOSCA Structure and Scoring

Section title & brief item name	Range of item scores	Range of section scores
a. Behavioral Problems		0-16
1. Aggressive/antisocial	0-4	
2. Over-activity, attention	0-4	
3. Self-harm	0-4	
4. Substance misuse	0-4	
b. Impairment	0-4	0-8
5. Scholastic/language skills	0-4	
6. Physical disability		
c. Symptomatic problems	0-4	0-12
7. Hallucinations & delusions	0-4	
8. Non-organic somatic symptoms	0-4	
9. Emotional & related symptoms		
d. Social Problems	0-4	0-16
10. Peer relationships	0-4	
11. Self-care & independence	0-4	
12. Family life & relationships	0-4	
13. Poor school attendance	0-4	
e. Total score (1-13)		0-52

Each item is rated on a 5-point scale of severity (0-4):

0: No problem; 1: Minor problem requiring no action; 2: mild problem but definitely present;
3: Problem of moderate severity; 4: Severe to very severe problem.

Appendix B

Project Assessment sheet (Page 1 of 2)

Date:

Instructions: Please fill out or circle/check one only as appropriate

- a) ID # (Place patient sticker here):
- b) Gender: Male or Female/ Insurance: Insured or Not Insured
- c) Race:
 - a. White, Non-Hispanic
 - b. Black or African American
 - c. Hispanic
 - d. Asian
 - e. Others
- d) Age:
 - a. 13
 - b. 14
 - c. 15
 - d. 16
 - e. 17
- e) Admission status: Date of last admission:
 - a. 1st episode
 - b. Readmission within 30 days
 - c. Readmission > 30 days
- f) Chief complaints:

g) HoNOSCA score:

Reviewed: YES or NO

Appendix B continued

Project Assessment sheet (Page 2

of 2) ID # (Place patient sticker here)

*HoNOSCA Score Sheet

Date:

Section title & brief item name	Item scores
a. Behavioral Problems 1. Aggressive/antisocial 2. Over-activity, attention 3. Self-harm 4. Substance misuse	
b. Impairment 5. Scholastic/language skills 6. Physical disability	
c. Symptomatic Problems 7. Hallucinations & delusions 8. Non-organic somatic symptoms 9. Emotional & related symptoms	
d. Social Problems 10. Peer relationships 11. Self-care & independence 12. Family life & relationships 13. Poor school attendance	
e. Total score (0-52)	

*As needed, please refer to “Glossary for HoNOSCA score sheet” located in nursing station for guidance in completing this form.