

**Standardizing Medical Clearance of Behavioral Health Patients: Implementation and
Evaluation of Adapted SSVMS SMART Form at a Rural Community Hospital Emergency
Department**

Megan Elizabeth Barter Sedig, BS, MSN, RN, DNP Candidate

University of Hawaii at Hilo School of Nursing

April 18, 2023

This practice inquiry project has been approved for meeting partial requirements for the Doctor of Nursing Practice Degree at the University of Hawai'i Hilo School of Nursing

Committee Chair:

Dr. Patricia Hensley, DNP, APRN, FNP-BC
Name

Committee Member:

Dr. Katharyn Daub, EdD, CTN-A MNed, RN
Name

Abstract

The number of inpatient psychiatric beds has decreased by over 500,000 beds since the 1950s. This has led to many patients seeking mental health care through emergency departments (ED) and a high percentage of ED hours are utilized by patients experiencing mental and/or behavioral crises, in turn leading to overcrowded EDs across the country. The Sierra Sacramento Valley Medical Society (SSVMS) implemented the SMART Form in 2015 to standardize and assist ED providers with the process of ‘medical clearance’ of mental/behavioral health patients. SSVMS SMART Form use led to a 14.9% decrease in ED length of stay (LOS). In the current study, the SMART Form was adapted for use in a rural hospital to evaluate effects on ED LOS, number of blood draws, and number of ancillary tests ordered. Other metrics evaluated were the utilization rate of the SMART Form and staff satisfaction. During the one-month implementation period, it was found that the adapted SMART Form was not utilized, yet staff satisfaction with measures regarding ED workflow, communication between the ED and BHU, and the ED LOS of patients admitted to the BHU shifted from a *dissatisfied* position to a *neutral* position. Future steps to continue to improve staff satisfaction measures would be to require that the adapted SMART Form be completed prior to ordering psychiatric consults, evaluating if the SMART Form reduces length of time for patients with a mental and/or behavioral chief complaint to be evaluated by psychiatry, and continuing to assess how increased hospital census affects both departments to develop creative solutions to address increased LOS.

Keywords: SMART Form, mental health, behavioral health, staff satisfaction, medical clearance

Table of Contents

Chapter 1: Statement of the Problem	4
Introduction	5
Problem Statement	9
Purpose	9
Chapter 2: Review of the Literature and Conceptual Framework	12
Problem Overview	12
Literature Synthesis and Critique	19
Figure 1	21
Chapter 3: Project Design and Evaluation Plan	26
Project Design	26
Project Participants	27
Project Aims and Objectives	31
Methods of Data Collection and Data Sources	36
Data Analysis Methods	37
Resources and Services Utilized	38
Table 1	39
Protection of Human Subjects and Ethical Assurance	39
Chapter Four: Results	41
Results	41
Figure 2	46
Figure 3	47
Figure 4	47
Figure 5	48
Figure 6	52
Figure 7	53
Figure 8	54
Figure 10	56
Figure 11	56
Figure 12	57
Chapter Five: Recommendations and Conclusions	58
Discussion of Results	58
Figure 13	59
Figure 14	62
Project Facilitators and Strengths	66
Current and Future Implications for Practice	67
Dissemination Plans	68

Conclusion	68
References.....	70
Appendix A.....	78
Appendix B.....	82
Appendix C.....	83
Appendix D.....	84
Appendix E.....	85
Appendix F.....	86
Appendix G.....	90
Appendix H.....	91
Appendix I.....	92
Appendix J.....	102
Appendix K.....	104
Appendix L.....	107
Appendix M.....	111
Appendix N.....	113
Appendix O.....	114
Appendix P.....	116
Appendix Q.....	117
Appendix R.....	118
Appendix S.....	125
Appendix T.....	126
Appendix U.....	128
Appendix V.....	129
Appendix W.....	131
Appendix X.....	136

Chapter 1: Statement of the Problem

Introduction

Individuals experiencing mental health-related emergencies are increasingly seeking care in emergency departments (EDs) due to the limited number of psychiatric beds around the country (Nordstrom et al., 2019). Since 2009, the number of ED encounters for mental health concerns has drastically increased. Data gathered from the National Hospital Ambulatory Medicare Care Surveys found that EDs have seen an increase of 40.8% in the annual number of mental health-related visits from 7 million to 10.4 million visits for adults between 2009 and 2015 (Santillanes et al., 2019). In many cases, EDs do not have guidance from psychiatric units in treating acute and significantly ill psychiatric patients and thus, providers are concerned about possible liability in treating these patients (Nordstrom et al., 2019).

As mental health-related ED visits increase, the number of psychiatric inpatient hospital beds in the US has dramatically decreased by over 500,000 beds since the peak in the 1950s, which is approximately 97% reduction in beds (Hudson, 2021; Lutterman et al., 2017). Due to limited inpatient psychiatric beds, patients experiencing mental health-related emergencies are boarding in the ED with an average length of stay (LOS) of over 18 hours, which is 3.2 times longer than non-psychiatric patients (Nicks & Manthey, 2012). A retrospective analysis of ED encounters from the National Hospital Ambulatory Medical Care Visit Survey by Santillanes et al. (2019) found that 11.2% of all ED hours were utilized by adults with mental health-related illnesses as evident by a median LOS for mental health-related visits being 3 hours longer than non-mental health-related visits, likely contributing to ED overcrowding. Furthermore, ED boarding becomes more of an issue as ED volume and occupancy reaches threshold and thus, ED boarding represents a system response to high patient load (Pitts et al., 2014). This is creating a crisis for EDs as resources are not available for incoming ED patients with medical emergencies.

When patients present to the ED with a mental health-related concern, emergency physicians generally must perform a focused history and physical (H&P) exam to exclude any urgent medical needs (Libet et al., 2018). This “medical clearance” process generally includes laboratory testing to ensure the patient does not have any acute underlying medical needs and includes a complete blood count (CBC), basic metabolic panel (BMP), urine analysis (UA), urine toxicology, alcohol level, and acetaminophen level (Libet et al., 2018). Without a standard protocol, the mental health patient ‘medical clearance’ process can vary between providers and institutions causing delays in psychiatric treatment, lacking and mis-communication between providers, and poorer outcomes for these patients (Tucci et al., 2017). Waiting for potentially unnecessary ancillary test results can cause longer ED stays and potentially lead to poorer patient outcomes (Medford-Davis et al., 2018; Rasouli et al., 2019a). Testing inconsistencies and mis-communication between ED and psychiatric providers can lead to unclear expectations of what constitutes a ‘medically stable’ patient for psychiatric admission resulting in poorer patient outcomes and utilization of limited ED resources (Anderson et al., 2017; Tucci et al., 2017). Standardizing the medical clearance process for ED patients with acute mental-health related emergencies is imperative to improve patient outcomes, facilitate effective handoff to psychiatry services, and freeing ED resources to meet the needs of other ED patients.

Background

Each year one in five U.S. adults experiences a mental illness (Substance Abuse and Mental Health Services Administration [SAMHSA], 2022). In 2021, 57.8 million adults in the US had any mental illness with 14.1 million adults reporting serious mental illness (SAMHSA, 2022). Based on data available from 2021, Hawaii had 227,000 adults with a mental health condition and 55,000 adults with a serious mental illness (SAMHSA, 2023). Prior to the

COVID-19 pandemic, in 2019, 36,000 Hawaii adults did not receive needed mental health care (Kaiser Family Foundation [KFF], 2020b). In this same timeframe, Hawaii had 17.6% of its population on Medicaid and 4.1% were uninsured (KFF, 2020a). Uninsured and underinsured individuals often do not receive needed preventative health care including mental health care (Nordstrom et al., 2019). Primary care providers are important first lines in identifying mental health care needs and triggering necessary referrals before a disorder progresses (Talen et al., 2013). In 2021, Hawaii County had a 40% physician shortage and a 11% primary care physician shortage (University of Hawaii, 2022). There is also a severe shortage of mental health care providers in the state with the county of Hawaii experiencing a 46% shortage of adult psychiatry providers (University of Hawaii, 2022). Shortages of PCPs and mental health care providers can lead individuals to seek emergency care due to lack of preventative care (Nordstrom et al., 2019).

National trends indicate that patients who are lower socioeconomic status (SES), underinsured, or uninsured may only receive mental health care during encounters with the ED (Nordstrom et al., 2019). According to the most recent U.S. Census Bureau data available from 2021 (Creamer et al., 2022), Hawaii County had 14.7% of people living in poverty compared to the entire state of Hawaii which had 11.2%. As of November 2022, Hawaii has enrolled 455,425 Medicaid and CHIP individuals which is a net increase of 57.94% since October 2013 with the first Marketplace Open Enrollment Period and related Medicaid program changes (U.S. Centers for Medicare and Medicaid Services, 2023). Psychiatric patients with Medicaid are twice as likely to have ED LOS over 24 hours when compared to privately insured patients (Thrasher et al., 2019). Located in rural and medically underserved Hawaii County (Health Resources & Services Administration, 2003), Hilo Medical Center is challenged by the demographics of its patient population with increased rates of poverty and Medicaid coverage, compounded by a

high percentage of self-reported bad mental health days and lack of both primary care and mental health providers.

Hilo Medical Center (HMC) has the second busiest ED in the state of Hawaii with 28 beds and caring for more than 43,000 patients annually (Hawaii Health Systems Corporation, n.d.). In 2020, Hawaii County has an estimated average annual population of 148,900 with 11% of residents (or 16,300) self-reporting experiencing 14 or more days of “bad” mental health (Hawaii Health Data Warehouse, 2023). Without sufficient access to mental health providers and lacking inpatient psychiatric beds, individuals with mental health-related illness are boarding in EDs and may lack access to appropriate treatment (Nordstrom et al., 2019). Furthermore, ED crowding is linked to consequences for other emergency patients’ health outcomes, the delivery of healthcare, and the community (Rasouli et al., 2019b).

In Spring 2020, HMC ED providers and inpatient psychiatric providers identified that facilitation of transferring patients from the ED to the hospital’s inpatient behavioral health unit (BHU) needed improvement (T. Thornett, personal communication, October 10, 2020). At the request of the HMC ED, the HMC psychiatric director began searching literature for evidence-based protocols to improve this handoff process (T. Thornett, personal communication, September 21, 2020). The Sierra Sacramento Valley Medical Society (SSVMS) SMART Medical Clearance Form, or “SMART Form”, was found to be a potentially useful protocol that could provide a standardized, evidence-based process to reduce unnecessary ancillary testing of behavioral health patients in the ED (see Appendix A). According to SSVMS (2015), the purpose of the SMART Form is to assist providers to effectively and efficiently medically clear ED patients with mental health-related illnesses. The SSVMS (2022) collaborated with specialists in emergency medicine and psychiatric medicine to create this evidence-based

protocol. The SSVMS SMART Form can serve as a succinct checklist to support ED provider decision making regarding medical clearance for patients with an established mental-health history. After reviewing this form, the HMC BHU providers had identified that the UA is key to this specific population served by HMC due to limitations of in-house laboratory testing for drug screening via blood specimens (J. Stevens, personal communication, 2022). Successful implementation of the SMART Form was expected to improve HMC ED workflow by facilitating timely transfer of ED patients to the BHU, improve communications between the HMC ED and BHU, and reduce the use of ED resources for this select patient population.

Problem Statement

When patients present to the ED with mental health-related emergencies, it is imperative to exclude any acute medical diagnosis or underlying condition that may be contributing to the current emergency prior to initiating a transfer to an inpatient psychiatric department (Olshaker et al., 1997). Utilizing a standard evidence-based protocol can reduce the use of hospital resources and permit the ED to operate at capacity thus improving patient outcomes by facilitating timely transfer of care to a psychiatric setting (Thrasher et al., 2019). Patients cared for in the proper environment ensures an appropriate level of care which promotes improved patient outcomes for mental health issues (Nordstrom et al., 2019).

Purpose

The purpose of this quality improvement (QI) project is to facilitate evidence-based, standardized medical clearance of patients presenting with mental/behavioral health chief complaints via implementation of an adapted SMART Form at the project hospital's ED. The overarching project goals were to decrease ED LOS and decrease hospital resource use (e.g., number of blood draws and ancillary tests such as CT, MRI, ultrasound, and/or X-ray) associated

with mental health related patient visits along with increasing provider and staff satisfaction with admission process between ED and inpatient psychiatry departments.

Project Aims and Objectives

Aim 1. Assess the problem of the medical clearance of mental/behavioral health patients in the project hospital ED.

Objective 1. Discuss the problem of the medical clearance of mental/behavioral health patients in the project hospital ED with hospital leadership and staff over a 1 month timeframe in January 2021.

Objective 2. Review literature on the problem of medical clearance of mental/behavioral health patients in the ED setting and potential solutions over a 3 month timeframe from February 2021 to April 2021.

Aim 2. Implement an evidence-based protocol to standardize the medical clearance of mental/behavioral health patients in the project hospital ED.

Objective 1. Incorporate the adapted project hospital's SMART Form into the EMR over a 1 month timeframe in November 2022.

Objective 2. Promote the universal implementation of an adapted SMART Form in the project hospital's ED over a 3 month timeframe from November 2022 to January 2023.

Aim 3. Evaluate the impact of the adapted SMART Form on project hospital ED process and outcome measures (e.g., LOS, number of blood draws, number of ancillary tests) and staff satisfaction post-implementation of the adapted SMART Form.

Objective 1. Evaluate compliance with utilization of the adapted SMART Form for patients presenting to the ED with a mental/behavioral health chief complaint over the 1 month project implementation timeframe from January to February 2023.

Objective 2. Measure baseline LOS, number of blood draws, and other ordered ancillary test data for ED patients with a mental/behavioral health chief complaint over a 1 month timeframe from January to February 2022.

Objective 3. Compare pre to post changes in LOS, number of blood draws, and other ordered ancillary tests post-implementation of adapted SMART Form for the 1 month timeframe of the project implementation phase, January 2023 to February 2023.

Aim 4. Evaluate the impact of the adapted SMART Form on ED and BHU staff satisfaction post-implementation of the adapted SMART Form.

Objective 1. Measure baseline staff satisfaction with the BHU admission process pre implementation of the adapted SMART Form over a 2 week timeframe December 16, 2022 to December 30, 2022.

Objective 2. Compare pre to post staff satisfaction with the BHU admission process post implementation of the SMART Form over a 2 week timeframe February 5 to February 19, 2023.

Chapter 2: Review of the Literature and Conceptual Framework

Problem Overview

As mental health-related emergencies continue to increase in the United States, EDs are overwhelmed as patients seek care through the ED to obtain inpatient and outpatient mental healthcare (Nordstrom et al., 2019). There are many contributing factors as to why more patients are seeking mental health care through the ED such as lacking outpatient mental health providers, decreased number of in-patient psychiatric facilities, health insurance status, and decreased funding for mental health services (Anderson et al., 2017; Haugh, 2006). Since the passage of the Emergency Medical Treatment and Labor Act in 1986, EDs have been required to hold mental health patients who present to the ED until a psychiatric bed is available, which results in EDs operating as safety nets for mental health emergencies (Haugh, 2006).

Emergency Department Assessment

Studies have shown that 24-63% of psychiatric patients have medical comorbidities (Good et al., 2014; Nicks & Manthey, 2012; Olshaker et al., 1997; Williams & Shepherd, 2000). Therefore, patients experiencing a mental health-related emergency should be evaluated with a comprehensive H&P in conjunction with a complete set of vital signs (Libet et al., 2018; Olshaker et al., 1997). However, patients experiencing mental health-related emergencies are boarding in the ED on average 11.2 hours while awaiting admission to a mental health facility, which is 3.2 times longer than non-psychiatric patients awaiting transfer (Conigliaro et al., 2018). One contributor to the longer boarding times is delay in results of often unnecessary ancillary tests that do not change the patient's ultimate transfer to an inpatient psychiatric unit (Conigliaro et al., 2018). A systematic review by Conigliaro et al. (2018) identified 2,847 publications up to June 2017 and extracted the data from three separate studies (n = 629 patients)

finding that the laboratory testing results for patients with psychiatric chief complaints were deemed significant in only 0.0%-0.4% of cases, meaning the test results changed the patients' disposition. The laboratory results were considered significant if they directly changed the plan of care or patient's disposition (Conigliaro et al., 2018). Thus, there seems to be consensus in the literature that a comprehensive H&P by an ED provider is sufficient to rule out underlying acute medical issues in patients with a history of a psychiatric disorder (Conigliaro et al., 2018; Thrasher et al., 2019; Wilson et al., 2017). However, research has shown that ED providers do not obtain adequate histories or perform sufficient physical examinations to rule out underlying medical conditions contributing to mental health issues indicating a need for ED providers to have a standardized protocol to assist with this process (Tucci et al., 2017).

A new onset of psychiatric symptoms can be triggered by numerous medical conditions and thus requires a complete workup in the ED (Tucci et al., 2017). A complete ED workup can include a thorough H&P, a set of screening laboratory tests including a CBC, CMP, thyroid stimulating hormone (TSH), UA, urine drug screen (UDS), alcohol level, acetaminophen level, salicylate level, and pregnancy test (beta HCG) along with any further laboratory evaluation and/or imaging deemed necessary by the ED provider (Libet et al., 2018). However, there is strong literature evidence supporting that complete workups for patients with prior mental health diagnoses presenting with mental health-related emergencies are often unnecessary, costly, and delay transfer of care to an appropriate setting (Congliaro et al., 2018; Thrasher et al., 2019; Tucci et al., 2017; Wilson et al., 2017). Thus, there is a literature gap regarding whether a thorough H&P is sufficient to avoid missing an acute medical condition in patients presenting with a psychiatric chief complaint.

Communication Barriers

Literature indicates that direct communication between providers at referring and receiving facilities with regards to mental health patients is the best way to facilitate optimal transfer of care (Nordstrom et al., 2019). State governments can assist with ensuring laws do not further hinder communication between healthcare providers especially if local state laws are more restrictive than the Health Insurance Portability and Accountability Act (HIPAA) that essentially eliminates communication between ED providers and community mental health clinics (Nordstrom et al., 2019). However, in Wisconsin, Thrasher et al. (2019) found that there was barely any communication between physicians at referring and receiving hospitals regarding the care of mental health patients. This was also noted in the Sierra Sacramento Valley region as discussed by SSVMS (2015). There are also issues with terminology depending on context as ‘medical clearance’ can imply a patient is ready for psychiatric evaluation, stable for admission to in-patient psychiatry, or ready for discharge (Anderson et al., 2017). Therefore, with the lack of direct communication between providers and ambiguous interpretation of ‘medical clearance,’ transfer of mental health patients from the ED to various mental health inpatient settings could potentially lead to patients being transferred inappropriately or to the wrong setting. Thus, an interdisciplinary standard of the medical clearance process can help alleviate this communication barrier to ensure providers at both facilities comprehend the definitions of medical stability, clearance, and admission processes (Tucci et al., 2017). Utilizing a standardized, evidence-based medical clearance process that both involved units have collectively agreed upon can provide a basis to facilitate timely and appropriate transfer of patients.

Sierra Sacramento Valley Medical Society (SSVMS) SMART Form

The SSVMS (n.d.) is the oldest medical society in California encompassing the counties of El Dorado, Sacramento, and Yolo. The SSVMS (n.d.) represents over 6,500 physicians and

medical students and serves as a component medical society of the California Medical Association. Since 1960, SSVMS (2015) has organized an Emergency Care Committee from all 12 hospitals in the area to meet bi-monthly to discuss ongoing issues related to emergency care services. In 2009, the SSVMS (2015) organized a series of meetings to discuss the implications of the growing mental health crisis and strains on the ED at which time the average LOS of individuals needing mental health evaluations was 19.5 hours. The SSVMS (2015) found that if patients needed admission into a psychiatric facility, they could be boarding in the ED for days. Data reviewed showed that the influx of mental health patients was resulting in the delivery of suboptimal care, ED overcrowding, increased ED LOS, and risks for adverse outcomes for all ED patients (Guttmann et al., 2011; Nicks & Mathey, 2012; SSVMS, 2015). In 2014, the SSVMS (2015) collaborated with specialists in emergency medicine and psychiatric medicine to create a new evidence-based protocol called the SMART Form (see Appendix A) to standardize the medical clearance process to “ensure all ED providers are performing the same evaluation that is thoughtful, patient specific, and evidence-based” (p. 16).

The first page of the SMART Form protocol includes evaluation of *suspected* new onset of a psychiatric condition (“S”), *medical* conditions that require screening (“M”), *abnormal* (“A”), *risky* presentation (“R”), and *therapeutic* levels (“T”). Medical (“M”) conditions listed for evaluation are diabetes, possibility of pregnancy, or other complaints requiring screening. The Abnormal (“A”) section incorporates evaluation of abnormal vital signs (e.g., fever, brady/tachycardia, hypo/hypertension, brady/tachypnea), mental status assessment and evaluation of intoxication, and physical exam such as presenting unclothed. Risky (“R”) presentation encompasses evaluation of age less than 12 or greater than 55, possibility of ingestion (suicidal patients), eating disorders, potential of alcohol withdrawal, and/or other risky

presentations including ill-appearing, having significant injuries, prolonged struggles or being found unconscious. Therapeutic (“T”) levels require evaluation of the levels of certain medications including phenytoin, valproic acid, lithium, digoxin, and warfarin (INR).

The SMART Form also includes three additional pages (see Appendix A). The second page provides a detailed description of abbreviations utilized on page 1. The third page of the SMART Form details the H-Impairment Index (HII Score) to assess if a patient is clinically sober or intoxicated (Nwaobiora, 2017; SSVMS, 2015). The HII score comprises five sections including: Gross Motor Function, Mentation and Speech, Tracing curve, Nystagmus, and Finger to Nose Testing. Each section has a range from 0 to 4 points and then all five sections are added together for a total score. A score greater than 4 indicates that the patient is not clinically sober and requires a blood alcohol level (BAL) be drawn (Nwaobiora, 2017). Once a BAL is completed, the ED staff can then estimate the time for the patient to be “sober” by evidence-based calculations of 30 points drop in BAL per hour (Nwaobiora, 2017). This estimation based on the “initial” BAL can save time as subsequent BALs are not needed to be drawn and waiting for processing before declaring a patient is clinically sober for evaluation by psychiatry. The final page of the SMART Form is the “tracing curve” that is provided to the patient which requires the patient to use a pen/pencil and trace the curve in between lines as another indication of a patient’s field sobriety as part of the HII Score.

The aim of the SMART Form protocol was to address the growing need to effectively and efficiently medically clear behavioral health patients (SSVMS, 2022). Implementation of the SMART Form began in the fourth quarter of 2015 and was to be implemented regionally in Sacramento County and was piloted first in three separate hospitals before expanding (SSVMS, 2015; S. Thomas, personal communication, September 13, 2022). Nwaobiora (2017) evaluated

ED LOS at one non-profit hospital located in the metropolitan area of Sacramento. The average ED LOS prior to SMART Form implementation from January to July 2016 was 20.85 hours compared to 17.75 hours after implementing the SMART Form from August to November 2016, which was a 14.9% decrease in ED LOS (Nwaobiora, 2017). The SSVMS has assisted other institutions in California including UC Davis and implemented statewide in Wisconsin and Tennessee (S. Thomas, personal communication, September 13, 2022). While data from these various institutions continue to show the benefits of standardizing the medical clearance process by utilizing the SMART Form, these results have not been published, only shared privately with the SSVMS (S. Thomas, personal communication, September 13, 2022).

Wisconsin SMART Form: Adaptation of the SSVMS SMART Form

Following the convening of the SSVMS in 2015, a task force with representatives from the Wisconsin Chapter of the American College of Emergency Physicians and Wisconsin Psychiatric Association convened to review clinical practice guidelines and primary sources of literature to address the non-standardized and suboptimal practices of assessing and medically clearing patients with acute mental health concerns in the ED (Thrasher et al., 2019). Based on the literature review, this task force made recommendations aimed at streamlining the ED process for this specific patient population. The SSVMS SMART Form was reviewed, and the task force proposed the Wisconsin SMART Form, an adaptation of the original SMART Form to include two new subsections (Thrasher et al., 2019). The first addition was the inclusion of assessment for “Trauma involved presentation” to the “Risky Presentation” portion of the form to specifically address any possibility of head injury or other forms of trauma that may require further ED medical workup (see Appendix B).

This task force ultimately made the following five practice recommendations regarding the assessment and medical clearance of acute mental health patients presenting to the ED: (1) detailed H&P exam, (2) diagnostic testing guided by the individual patient's H&P exam, (3) ED providers facilitate medical treatment of patients referred to freestanding psychiatric facilities with limited medical resources, (4) employ a uniform tool to guide medical evaluation: Wisconsin SMART Form, and (5) ED providers and psychiatrists communicate directly about patient care (Thrasher et al., 2019). The Wisconsin SMART Form was adopted and implemented in 2019, however, the findings evaluating implementation were not published. This highlights the literature gap of published results of SMART Form's implications on ED workflow and outcomes in various organizations.

Other Possible Solutions

The literature was searched for other possible solutions to ED crowding with regards to patients needing mental health evaluation. The SSVMS (2015) discussed use of "psychiatric emergency services" (PES) to ensure patients experiencing a mental health crisis receive care in a healing-conducive environment since traditional EDs are generally not secure, present unique risks for suicidal patients, including increased risk of elopements. These units can be standalone entities or exist within an organization but are physically separated from the main ED to create a more healing and appropriate environment for mental and behavioral health patients. Another potential solution discussed in the literature is utilizing a locked psychiatric observation unit. Such a unit would generally be utilized for patients considered to only need a stay of less than 48 hours or require in-patient psychiatric admission when there is no available bed (Parwani et al., 2018). Other options discussed included expanding mental health resources on an outpatient basis or expanding EDs to accommodate more patients (Rasouli et al., 2019a).

One way to improve outpatient mental healthcare access by facilitating the transition from hospital-based care to community-based care and reduce waiting times is the possibility of utilizing telemedicine (Levin-Epstien, 2015; Li et al., 2021). In September of 2014, KentuckyOne Health utilized mental health telemedicine collaboration using a secure video conference system that allowed mental health professionals to respond to consultation requests in approximately 15 minutes (Levin-Epstien, 2015). Li et al. (2021) found that while telepsychiatry is promising, there are still low rates of telepsychiatry adoptions in counties that have been designated as shortage areas for mental health providers. The project hospital has already adopted telepsychiatry for prompt psychiatric evaluation in the ED, thus, this solution is already being utilized. Another possible solution discussed in the literature is to amend the current federal law prohibiting the billing of Medicaid by institutions for mental diseases (IMDs) that have more than 16 beds (Eide & Gorman, 2021). This financial reimbursement change would allow larger facilities to assist with alleviating the inpatient psychiatric bed crisis by increasing the number of beds and reducing the facility's financial burden with the ability to bill Medicaid. The other potential solutions are more comprehensive and would likely greatly improve ED workflow and patient outcomes, however, they require considerable funding and planning to accomplish and implement.

Literature Synthesis and Critique

The literature has shown that ensuring mental health-related emergencies are quickly evaluated and transferred to the appropriate level of care is a national issue (Anderson et al., 2017; Haugh, 2006; Thrasher et al., 2019). EDs are overwhelmed and require methods to reduce ED boarding to ensure emergency resources are appropriately utilized to meet the needs of the community (Rasouli et al., 2019a). Implementation of the SMART Form provides evidence-

based standardization to facilitate a prompt, safe, and appropriate transfer to an inpatient psychiatric department by alleviating the ambivalence of ‘medical clearance’ of a patient experiencing a mental health-related emergency (Nwaobiora, 2017; SSVMS, 2015). Recognizing when to use the SMART Form is another consideration. The literature indicates that the SMART Form should be immediately used when a patient presents with a mental/behavioral health chief complaint. Madsen et al. (2009) found that the most common categories of chief complaints for mental/behavioral health patients presenting to the ED are the following: suicidal ideations/attempts, psychotic symptoms, substance abuse, behavior issues, depression, anxiety, medical, and homicidal ideations. Recognizing a mental/behavioral health chief complaint will ensure application of the SMART Form in order to improve ED workflow by creating an interdisciplinary medical clearance process, standardizing terminology to alleviate miscommunication, and promoting transfer of mental/behavioral health patients out of the ED (SSVMS, 2015).

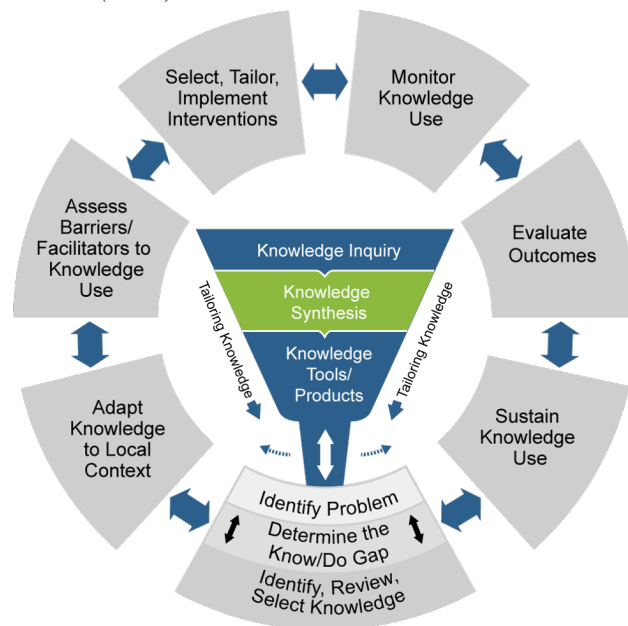
The literature addresses that blanket ancillary testing for medically clearing mental health-related patients as unnecessary, but there has been a persistent gap in evaluation of the implementation process of the SMART Form with measurable outcomes. The literature has also not addressed the workflow obstacles regarding communication between ED providers and inpatient psychiatric units to facilitate prompt transfer after ensuring there are no acute medical needs. There needs to be more evidence of an effective, efficient, and feasible standardization process to ensure adequate communication between ED and psychiatric providers. Thus, a project designed to ensure universal implementation of a standardized process and evaluate the success of that implementation through specific outcomes is greatly needed.

Conceptual Framework

The original SMART Form has been shown to be adaptable to meet the needs of various facilities depending on the patient population. The Wisconsin SMART Form adapted and tailored the SSVMS SMART Form to include the addition of a section to address head injury and other forms of trauma (Thrasher et al., 2019). Thus, it was important to identify and facilitate any necessary adjustments to the SMART Form based on provider feedback and accommodate a facility's patient population. Continued communication with providers at the project hospital ensured that the SMART Form was tailored to the project hospital to maximize continued use. Thus, the conceptual framework that guided this project was the Knowledge of Action (KTA) model (Graham et al., 2006) (see Figure 1).

Figure 1

Model of Knowledge of Action (KTA)¹



¹ See Appendix C & D for Permissions

The KTA model is a conceptual framework that can be used to guide the process and integration of knowledge creation and knowledge application (Graham et al., 2006). Knowledge creation is the first portion of the KTA model and involves three steps: knowledge inquiry, knowledge synthesis, and knowledge tools/products. Knowledge creation ensures all the pertinent knowledge available is gathered and synthesized, and then used in creating tools to improve healthcare. The second portion of the KTA model is the knowledge application, or action, cycle. The action cycle is comprised of the following phases:

1. Identifying the problem or issue to address, determining the knowledge-to-practice gap, and selecting the appropriate intervention
2. Adapting the knowledge to the specific context
3. Assessing barriers and facilitators to using this knowledge
4. Selecting, tailoring, and implementing the right intervention
5. Monitoring knowledge use
6. Evaluating outcomes
7. Sustaining the knowledge use.

The KTA model is the foundation of knowledge translation and describes the processes of knowledge creation and turning that knowledge into action (Graham et al., 2006). Utilizing all of these phases assists with implementation of knowledge and sustaining the change.

Project Aims and Objectives Guided by KTA Model

The KTA model knowledge application, or action, cycle step of “Identifying the problem or issue to address...” aligns with project Aim 1 to “assess the problem of the medical clearance of mental/behavioral health patients in the project hospital ED” and Objective 1 to “discuss the problem of the medical clearance of behavioral health patients in the project hospital ED with

hospital leadership and staff'. The project hospital has identified the clinical issue of ED crowding, ED to BHU inter department communication gaps, and need to improve and standardize practices in the ED to facilitate transfer of patients to the inpatient BHU due to the misleading and often confusing term of "medical clearance" as identified by the literature (Anderson et al., 2017; Thrasher et al., 2019; Tucci et al., 2017).

Next, the KTA model primary concepts of *knowledge inquiry*, *knowledge synthesis*, and *knowledge tools/products* aligns with project Aim 1 as well and specifically Objective 2 to "review reputable published literature on the problem of medical clearance of mental/behavioral health patients in the ED setting and potential solutions". This objective involved conducting a comprehensive literature review to identify and synthesize the available knowledge (i.e., literature evidence) on the problem of medically clearing behavioral health patients and possible evidence-based methods to address this issue. This step also involved the KTA model knowledge application, or action, cycle step of "...determining the knowledge-to-practice gap, and selecting the appropriate intervention". The literature review revealed other possible evidence-based methods and tools to address this issue such as expanding outpatient mental health services, creating observational psychiatric units or standalone PES as described in the literature review section above. Ultimately the SMART Form was chosen as an evidence-based first step towards addressing the issue based on cost-effectiveness and current inability to create additional beds (J. Stevens, personal communication, 2022). The project hospital subsequently utilized the SMART Form but included the UA as part of the BHU order set to assess for illicit substances despite the literature indicating that eliminating a urine drug screen was one way to reduce unnecessary patient testing (Parmar et al., 2012). The project hospital laboratory does not have the capability at this time to test for substances via blood draws, thus, the urine drug screen was still required as

part of the adapted SMART Form for this specific hospital. This action was aligned with the KTA Model process step of “Adapting the knowledge to the specific context” and the “Selecting [and] tailoring...the right intervention”.

Next, project Aim 2, Objective 1 to “incorporate the adapted project hospital’s SMART Form into the EMR over a 1 month timeframe” and Aim 2, Objective 2 to “promote the universal implementation of an adapted SMART Form in the project hospital’s ED over a 3 month timeframe” was guided by the KTA model application, or action, cycle steps of “Selecting, tailoring, and implementing the right intervention” and “Monitoring knowledge use”. The “tailoring of knowledge” and “implementation” portion involved educating providers on the evidence-based change (i.e., use of the adapted SMART Form) and need for this change while ensuring there was open communication between staff to identify any issues with the use of the SMART Form at the project hospital. This promoted provider satisfaction and can continue to improve ED workflow by tailoring and monitoring the use of the SMART Form. The tailoring of knowledge and implementation portion consisted of educating providers on the evidence-based change, the need for the change, and will help to perpetuate and sustain the new knowledge use in the future.

Finally, project Aim 3 and 4 to “evaluate the impact of the SMART Form on project hospital ED process and outcome measures (e.g., LOS, number of blood draws, number of ancillary tests)” and “evaluate the staff satisfaction post-implementation of the SMART Form”, respectively, aligned with the KTA model step of “Evaluating outcomes”. The outcome data results were compared to the same baseline data to determine the impacts of the project change. The outcome findings of this project can be used by the project hospital ED leadership in guiding the final KTA model step of “Sustaining the knowledge use”. Evaluation of the SMART Form

will be ongoing using the proposed metrics of evaluation such as LOS, number of diagnostic tests, and staff satisfaction. The KTA model will enhance the implementation and evaluation of this project with the emphasis on evaluation and sustaining knowledge for use in conjunction with the adaptation to the local community.

Chapter 3: Project Design and Evaluation Plan

The purpose of this QI project was to facilitate evidence-based, standardized medical clearance of patients presenting with mental/behavioral health diagnoses via implementation of an adapted SMART Form at the project hospital ED. The overarching project goals were to decrease ED LOS and decrease the use of hospital resources (e.g., number of blood draws and ordered tests such as CT, MRI, ultrasound, and/or X-ray) associated with mental/behavioral health-related patient visits and increase provider and staff satisfaction with facilitating transfer between ED and psychiatry departments.

Project Design

The project was implemented by cooperation and collaboration from multidisciplinary and multi department engagement. The two departments with vested interests in this project were the project hospital ED and BHU (i.e., inpatient psychiatry). This project required the engagement of multidisciplinary providers from both units along with input from nursing and administrative staff. The aim was to ensure new processes were utilized for every patient and allowed for the stakeholders to identify issues with new EMR order sets in real time. Prior to initiation of this project, a letter of support from the project hospital's Chief Nursing Officer was obtained along with completion of necessary Collaborative Institutional Training Initiative (CITI) training and then received the Internal Review Board (IRB) approval as exempt (see Appendix E, F, & G). Permission to utilize the SMART Form was obtained from SSVMS (see Appendix H).

Project Setting

The project setting was at the project hospital and specifically, within the project hospital's ED and BHU in Hawaii County. Per the Health Resources and Services

Administration (2003), Hawaii county is considered a rural and medically underserved area. The project hospital is a Joint Commission accredited community hospital with 157 beds for acute care and 35 beds for long-term care (Hawaii Health Systems Corporation, n.d.). The project hospital ED is a 28-bed unit with dedicated specialty areas including trauma, cardiovascular events, stroke, and maternity care. The project hospital's BHU is a 12-bed locked, inpatient adult psychiatric unit. For the time periods specific to this project, January 2022 had 3,431 ED visits with 520 ED psychiatric visits, with a resulting ED psychiatric visit rate of 15.2%. January 2023 had a total of 3,548 ED visits with 523 ED psychiatric visits resulting in an ED psychiatric visit rate of 14.7%.

Project Participants

Any chart from an ED encounter that requested a psychiatric consult was identified for initial review. These charts were then reviewed to determine the "chief complaint". Patient charts that were included for analysis were adult patients who presented to the ED with a chief complaint of a mental or behavioral health emergency. Any chart that had a non-mental/behavioral chief complaint (e.g., shortness of breath, heart palpitations, abdominal pain) were not included for analysis. Mental or behavioral chief complaints may include but are not limited to the following: suicidal ideation, homicidal ideation, harming oneself or others, depression, anxiety, hallucinations, delusions, screaming or muttering to oneself, public nuisance, substance/alcohol abuse, and/or a psychiatric hold (Madsen et al., 2009). Since this project aimed to improve the admission process between the ED and BHU, these charts were reviewed to determine if the patient met the admission criteria to the BHU.

Per the project hospital's BHU admission criteria (see Appendix I), the following conditions must be met for chart *inclusion* in this project's analysis:

1. Adults age 18 years or older.
2. Medically cleared by an ED provider.
3. Patient is independent and able to provide self-care or activities of daily living (ADL) and the diagnosis of severe mental illness does not prevent the ability of the patient to care for self.
4. Dangerous to others: likely to do imminent and substantial physical injury or emotional injury to another, as evidenced by a recent overt act, attempt or threat.
5. Dangerous to self: likely to do imminent substantial physical injury to one's self, as evidenced by a recent overt act, attempt or threat to injure one's self physically or by neglect or refusal to take necessary care of one's own physical health and safety together with incompetence to determine whether treatment for mental illness or substance abuse is appropriate.
6. Patients will meet the severity of illness criteria, which includes one or more clinical findings of recent onset or significant change:
 - a. Psychotic symptoms including auditory hallucinations, active command hallucinations, delusions, and/or disorganized thinking or behaviors.
 - b. Self-mutilation or impulses to engage in self-mutilation.
 - c. Depression, anxiety, or hypomania accompanied by significant social or occupational dysfunction.
 - d. Conditions failing to respond to less restrictive levels of outpatient care including non-adherence to medication(s).
 - e. Destructive behaviors towards property.

- f. Chronic patterns of prescribed or illegal substance abuse and/or alcohol intoxication with psychosocial deterioration expressed by:
 - i. Continued excessive alcohol and/or substance abuse resulting in loss of behavioral control and associated dangerous and/or life-threatening behavior.
 - ii. Severe deterioration in social, family, or occupations, and/or educational functioning (e.g., loss of job, physical violence at home, family member is enabler).
 - iii. Substance induced paranoia, insomnia, depression and anxiety
- g. Patient admission status must be voluntary (MH5) OR involuntary (MH4):
 - i. Voluntary Admission (MH5): a patient voluntarily consents to be admitted to a closed, locked psychiatric inpatient unit for treatment and stabilization of an acute psychiatric diagnosis(es).
 - ii. Involuntary Admission (MH4): if the physician, advanced practice registered nurse (APRN), or psychologist who performs an emergency examination has reason to believe that the patient is mentally ill or suffering from substance abuse; imminently dangerous to self or other; and in need of care or treatment, or both; the physician, APRN, or psychologist may direct that the patient be hospitalized on an emergency basis not to exceed 48 hours from the date and time of the MH4.

Charts were excluded from this project's analysis if they contained the following *exclusion* criteria for BHU admission (see Appendix I):

1. Medical comorbidities that require a medical/surgical setting because they are unable to be safely managed in the inpatient psychiatric setting (e.g., no bed rails, low toilets, hand rail restrictions, low flat stationary bed, shared restrooms/showers).
2. Awaiting admission and/or transfer to a nursing home or community care placement.
3. Homeless
4. A primary diagnosis of Alzheimer, Dementia, substance use/abuse, and/or ETOH intoxication.
5. The primary problem is not psychiatric and the admission is being used as an alternative for respite or housing.
6. Requires oxygen.
7. Patient with a foley catheter.
8. Patients with any highly transmissible infectious disease.
9. Concurrent admissions of relatives and/or significant others of any current behavioral health patients are not permitted. The last patient eligible for admission is transferred to a community psychiatric inpatient unit and may be transferred back to BHU once the relative/significant other is discharged.
10. Therapeutic or service animals are not allowed on the BHU and other arrangements for their care must be made.
11. A fugitive felon is defined as a “Patient fleeing from the law to avoid custody or confinement after conviction, prosecution, or violation of probation/parole for a felony offense”.

Once charts were reviewed and were determined to have met the inclusion criteria as described above with no exclusions, the charts were de-identified by being labeled as “patient

A”, “patient B”, etc. Data that was extrapolated for analysis was the date of the encounter, age, gender, race/ethnicity, and insurance status (e.g. private, government payer Medicare/Medicaid, or uninsured), LOS, number of ancillary tests, and number of blood draws (see Appendix J). Upon post-implementation, charts that met the inclusion criteria as described above were evaluated to determine if the SMART Form was utilized for all patients presenting to the ED with a mental/behavioral chief complaint. This was to ensure that ED providers were appropriately utilizing the SMART Form for any patient presenting to the ED that met the project inclusion criteria to standardize the medical clearance for possible admission to the BHU. Demographic data (age, gender, race/ethnicity, and insurance status) was gathered to review for possible differences in outcome measures (ED LOS and the number of blood draws or ancillary tests) by demographic variables.

Project participants that completed pre- and post-surveys included the ED and BHU staff specifically targeting all ED and BHU providers (physicians, psychologists, APRNs, and physician assistants), BH and ED RNs, ED techs, BHU CNAs, and other staff roles. Project surveys were distributed throughout both departments and participants could select “other” if they did not fit into the aforementioned categories. As described in the methods section below, the staff received an electronic survey (e.g., SurveyMonkey) via organizational email to assess pre- and post-satisfaction related to the project’s SMART Form implementation (see Appendix K & L).

Project Aims and Objectives

Aim 1. Assess the problem of the medical clearance of mental/behavioral health patients in the project hospital ED.

Objective 1. Discuss the problem of the medical clearance of mental/behavioral health patients in the project hospital ED with hospital leadership and staff over a 1 month timeframe in January 2021.

Methods. Met with BHU psychiatrists and staff regarding necessary portions of SSVMS SMART Form to be incorporated into the project hospital's adapted SMART Form. The ED providers verbalized that depending on the admitting BHU provider, different laboratory tests were required. As part of the discussion, the SMART Form was utilized as an EBP approach to standardize the method for ordering laboratory tests that are required for this specific patient population. The other goal was to move away from waiting for a legal BAL prior to evaluation by a psychiatric provider. This was where emphasis on the SMART Form's HII Score is invaluable to EDs as it allows for proof that a patient is 'sober' without waiting for BALs to drop to normal, especially in patients that are chronic alcohol abusers.

Objective 2. Review literature on the problem of medical clearance of mental/behavioral health patients in the ED setting and potential solutions over a 3 month timeframe from February 2021 to April 2021.

Methods. Peer-reviewed literature was gathered using various search engines including PubMed, EBSCOhost, and Google Scholar using the search terms "clearance, psychiatric patients, ED, SMART Form, boarding, diagnostic tests" spanning from 1995 to April 2021 for adult psychiatric patients. This literature review evaluated contributing factors and the various approaches to address the issue of ED boarding of psychiatric patients.

Aim 2. Implement an evidence-based protocol to standardize the medical clearance of mental/behavioral health patients in the project hospital ED.

Objective 1. Incorporate the adapted project hospital’s SMART Form into the EMR over a 1 month timeframe in November 2022.

Methods. Designed and incorporated an adapted SMART Form (as deemed necessary) that was approved by BHU staff into the project hospital’s EMR by coordinating with the hospital’s IT Department. The IT Department point of contact was a former RN and once given the adapted SMART Form template, the BH Clearance form was built and incorporated into the project hospital’s EMR. Once this adapted SMART Form was built, the appearance of the BH Clearance form for a test patient was reviewed with the IT builder. No further issues were addressed and auto populated areas such as vital signs were included prior to the go-live version of the BH Clearance form. After this meeting, the BH Clearance was uploaded to the EMR and providers were able to select it as ‘note’ for their patient(s). If indicated, the tracing curve of the HII Score part of the SMART Form could be printed off and then the completed tracing curve could be scanned into the patient’s chart.

Objective 2. Promote the universal implementation of an adapted SMART Form in the project hospital’s ED over a 3 month timeframe from November 2022 to January 2023.

Methods. Providers and staff were educated about the new evidence-based adapted SMART Form (i.e., BH Clearance form) to encourage buy-in prior to and during the project implementation timeframe from November 2022 to January 2023. Education was accomplished through staff meetings to disseminate information regarding the SMART Form and how the SMART Form had been successfully implemented in other facilities. Methods also included coordination with all ED providers and charge nurses to discuss appropriate utilization of the SMART Form for patients presenting to the ED with chief complaints of a “mental health or behavioral health” emergency prior to initiating a psychiatric consult for admission to the BHU.

This education was provided during three different staff meetings from October to December 2022 to ensure familiarity with the SMART Form and allow staff to ask questions regarding its use.

Aim 3. Evaluate the impact of the adapted SMART Form on project hospital ED process and outcome measures (e.g., LOS, number of blood draws, number of ancillary tests) and staff satisfaction post-implementation of the adapted SMART Form.

Objective 1. Evaluate compliance with utilization of the adapted SMART Form for patients presenting to the ED with a mental/behavioral health chief complaint over the 1 month project implementation timeframe from January to February 2023.

Methods. Charts of patients with a mental/behavioral health chief complaint were reviewed to evaluate provider use of the SMART Form. After implementation of the SMART Form, all charts of patients presenting to the ED with chief complaints of mental or behavioral health emergencies were evaluated to determine if ED providers utilized the SMART Form for these specific patients. This allowed for evaluation to determine if there was universal use of the new adapted SMART Form medical clearance process. See detailed data analysis methods below.

Objective 2. Measure baseline LOS, number of blood draws, and other ordered ancillary test data for ED patients with a mental/behavioral health chief complaint over a 1 month timeframe from January to February 2022.

Methods. Baseline LOS, number of blood draws, and other ancillary test data was measured for the prior year from January to February over the same timeframe of the project implementation phase described in Aim 2 above. This method was used to account for seasonal spikes of acuity and holiday factors contributing to mental health emergencies (Zhang et al.,

2021). To gather this data, charts were reviewed during this month recording the LOS, number of separate lab draws and other ancillary tests (i.e., CT, MRI, ultrasound), for each patient that had a mental/behavioral health chief complaint and met BHU admission criteria as described in the project inclusion criteria above (see Appendix I).

Objective 3. Compare pre to post changes in LOS, number of blood draws, and other ordered ancillary tests post-implementation of SMART Form for the 1 month timeframe of the project implementation phase from January 2023 to February 2023.

Methods. The post-implementation metrics were gathered in the same manner as the pre-implementation metrics for the time period of January to February 2023 (Aim 3, Objective 3). The two values were then compared and statistically analyzed using the independent samples t-test. The data analysis included 22 patients prior to implementation and 12 patients after implementation. See detailed data analysis methods below.

Aim 4. Evaluate the impact of the adapted SMART Form on ED and BHU staff satisfaction post-implementation of the adapted SMART Form.

Objective 1. Measure baseline staff satisfaction with the BHU admission process pre implementation of the adapted SMART Form over a 2 week timeframe December 16, 2022 to December 30, 2022.

Methods. A baseline assessment of staff satisfaction with the medical clearance of patients being transferred from the ED to the BHU was conducted. This was accomplished by distributing the links to each survey via internal facility email lists. These surveys were anonymous and the only identifying information was the role of the individual (provider, RN, or other). Staff were notified of the survey through flyers (see Appendix M) that were placed in break rooms and an email notification of the upcoming survey (see Appendix N) along with an

in-person announcement at ED and BHU staff meetings. The surveys (see Appendix K & L) were reviewed for content validity by the ED director and the BHU director as well as nurse managers of both departments. Surveys included a consent prior to starting the survey promising to protect anonymity through SurveyMonkey. The department managers of the ED and BHU were contacted to provide an email list of all staff in both departments, and the survey link was sent to the emails provided.

Objective 2. Compare pre to post staff satisfaction with the BHU admission process post implementation of the SMART Form over a 2 week timeframe February 5 to February 19, 2023.

Methods. A post-survey was sent via facility email to ED staff to gauge satisfaction regarding the BHU admission process after implementing the adapted SMART Form. This survey had additional questions where staff could report on the success of the SMART Form implementation as well as anonymously write any recommendations or critiques of the new medical clearance of patients being transferred from the ED to the BHU (see Appendix L).

Methods of Data Collection and Data Sources

As described above under “project participants”, this project included EMR reviews of adult ED patients that had a psychiatric consult and a mental/behavioral health chief complaint. The patients were de-identified as described previously. Charts of ED patients who had received psychiatric consults were first identified by account number and the data collected was then coded to de-identify patients to protect patient privacy. Charts were reviewed for utilization of the SMART Form, ED LOS, number of blood draws, and number of ordered ancillary tests (e.g., X-ray, ultrasound, CT/MRI) as well as collected key demographic data to track emerging themes.

Data Analysis Methods

The data received from project hospital's Decision Support Department was analyzed using basic statistics to identify the average ED LOS for included patient charts prior to implementing the standardized SMART Form compared to the average ED LOS after implementation. The number of ordered ancillary tests was compared pre- and post-SMART Form implementation. Each chart identified with a mental/behavioral health chief complaint was reviewed to evaluate if the EHR embedded SMART Form (BH Clearance) was utilized by ED providers to facilitate standardization of medically clearing patients that needed to be evaluated by psychiatric consult for possible admission. To ensure accurate comparison, the pre-implementation chart review covered the same time period of the year as the post-implementation period. For example, the pre-implementation chart review was of charts from January 2022 while post-implementation chart review was of charts from January 2023 (see Appendix O & Appendix P). The goal of using similar time of years was to eliminate compounding variables due to the time of year such as stressors affecting patients that may exacerbate mental health crises, acute illnesses (e.g., flu and colds), and consider staffing issues around holidays. The goal was to review 30 charts for pre-implementation and 30 charts post-implementation of the SMART Form. However, there were only 22 patients admitted to the BHU in January 2022 and 12 patients admitted in January 2023.

Once the charts were reviewed, the data collected specifically LOS and number of blood draws and/or ancillary tests fell under two categories (or time points):

1. Pre-implementation of SMART Form
2. Post-implementation of SMART Form

Due to the expected large number of charts, it was expected that the data would shape a normal distribution. Utilizing the independent samples t-test allowed for comparison of the two means to determine if implementation of the SMART Form significantly affected the LOS and number of blood draws and ancillary tests.

The staff satisfaction survey was analyzed pre- and post-implementation of the SMART Form. Data analysis evaluated responses of each question and compared each to pre- and post-implementation for changes. For open-ended questions, the surveys were evaluated for common themes.

Resources and Services Utilized

The resources utilized were the project hospital's IT department and Decision Support Department along with coordination with the ED and BHU providers and staff. The IT department was utilized to create the adapted SMART Form and incorporate it into the existing EMR. The Decision Support Department created the list of adult patients by account numbers that checked into the ED during the months of January 2022 and January 2023 with psychiatric consults. The services offered to patients was not affected as providers could use the SMART Form as a guide to standardize the medical clearance and BHU admission process, but at any time, the ED provider could intervene and adapt the plan of care for each individual patient depending on circumstances. Additional resources necessary for this project were the following: a SurveyMonkey subscription, printer paper, and printer ink for a total budget of \$208.00 (see Table 1 below). All expenditures associated with the pilot project were funded by the student investigator.

Table 1*Project Budget*

Resource	Qty	Cost	Funding Source	Justification
SurveyMonkey Subscription	4 months	\$128.00	Funded by student investigator	To distribute and access surveys
Printer Paper	1 ream	\$5.00	Funded by student investigator	To produce hard copies of survey flyers to be posted on ED and BHU units
Printer Ink	1	\$75.00	Funded by student investigator	To produce hard copies of survey flyers to be posted on ED and BHU units

Protection of Human Subjects and Ethical Assurance

The privacy of project hospital ED patients was protected by using project hospital account numbers to initially identify patients who had received a psychiatry consult. To further dissociate the patient from the chart to protect privacy, the account numbers were coded as “patient A”, “patient B”, and so on. This allowed the data of LOS and number of blood draws/ancillary tests to be accurately recorded without being linked to an individual’s identity. The codebook linking the codes with the account numbers was kept in the BHU director’s office under lock and key to allow for verification as needed during the project’s duration and potentially in the future. This data was initially gathered in the project hospital and then transposed to the student investigator’s spreadsheet with code of patient and previously discussed metrics. This spreadsheet was secured on a password protected computer and always in the possession of the student investigator.

The ethical assurance was provided as patients received the standard of care expected from the ED and BHU as dictated by the project hospital’s policies. This hospital QI project was to give ED providers a tool to standardize clearing mental and behavioral health emergency patients to streamline admission to the BHU. If at any point the SMART Form did not fit the

patient's presenting symptoms, the ED provider would use his/her judgment and adjust the treatment plan as indicated. Hospital providers and staff who participated in the pre- and post-surveys were not asked to provide any identifiable information. The only information that was gathered was demographic data such as role in each department to compare satisfaction across roles in both departments.

Chapter Four: Results

In this chapter, the results of the project will be discussed along with the analysis of the data, where appropriate, in accordance with the aims and objectives outlined in Chapter One.

Results

Aim 1. Assess the problem of the medical clearance of mental and behavioral health patients in the project hospital ED.

Objective 1. Discuss the problem of the medical clearance of mental and behavioral health patients in the project hospital ED with hospital leadership and staff over a 1 month timeframe in January 2021.

Meetings were conducted via telephone, videoconferencing, and in-person to discuss the issues regarding medical clearance of ED mental and behavioral health patients at the project hospital. During these meetings, the current stressors on the project hospital's ED and BHU departments were discussed. The two major themes that emerged as the source of tension between the two departments were (1) unclear criteria for admission to the BHU and (2) lack of communication between providers of the two departments. ED providers emphasized that admission criteria and required laboratory tests were variable between psychiatric providers. BHU providers expressed concern over medically complicated patients being admitted to the BHU and requiring more medical intervention than BHU resources could safely handle. From these meetings, it was determined that a literature review was necessary for evidence-based solutions for standardizing the medical clearance process.

Objective 2. Review literature on the problem of medical clearance of mental and behavioral health patients in the ED setting and potential solutions over a 3 month timeframe from February 2021 to April 2021.

Findings from the literature review showed common general contributing factors to medical clearance of ED mental and behavioral health patients such as unclear and inconsistent definitions of ‘medically clearance’. Literature suggested potential solutions to the problem including standardizing medical clearance, increasing psychiatric beds, and using standalone units for either emergency evaluation and intervention or to serve as observation units. One study showed that use of the SSVMS SMART Form resulted in a 14.9% decrease in ED LOS in a Sacramento metro area not-for-profit hospital in 2016 (Nwaobiora, 2017). Thus, this project’s stakeholders determined that use of this SMART Form (with some minor adaptations) would be the most immediately feasible response to address the concerns over variable BHU admission criteria and to adequately identify underlying medical conditions for mental and behavioral health patients prior to BHU admission. The potential solution of implementing an adapted SSVMS SMART Form was discussed with the project hospital’s ED and BHU departments in multiple meetings.

Aim 2. Implement an evidence-based protocol to standardize the medical clearance of mental and behavioral health patients in the project hospital ED.

Project guidelines for the implementation of the evidenced-based protocol were developed as described in the methods section in Chapter 3. The project hospital did not previously have a universal, standardized protocol for medically clearing ED mental and behavioral health patients prior to BHU admission. Seven months prior to the start of this project, the BHU revised their admission policy (see Appendix I) to mirror the SSVMS SMART Form to reduce any confusion prior to implementation of the SMART Form. The new BHU admission policy was discussed in the project participants section in Chapter 3.

Objective 1. Incorporate the adapted project hospital's SMART Form into the EMR over a 1 month timeframe in November 2022.

Collaboration with the project hospital's IT department allowed for the incorporation of the project's adapted version of the SMART Form into the EMR. The project hospital titled this the adapted SMART Form as 'BH Clearance'. The form as seen by a provider in the EMR in a test environment can be seen in Appendix Q.

Objective 2. Promote the universal implementation of an adapted SMART Form in the project hospital's ED over a 3 month timeframe from November 2022 to January 2023.

Promoting implementation of the adapted SMART Form in the project hospital's ED involved presenting a 16-slide PowerPoint presentation to the ED and BHU departments (see Appendix R). A total of three in-person presentations took place at ED and BHU division meetings. The evidence-based SMART Form along with relevant literature was presented and questions and/or concerns regarding the use of the SMART Form and its implementation were addressed. Attendees included BHU/ED providers, BHU/ED staff, administrative staff, and the EMR/IT Department director. Questions from attendees included how the SMART Form was incorporated in the EMR, utilization of the HII Score for evaluation of sobriety prior to psychiatric evaluation in lieu of drawing a BAL, and if the SMART Form aligned with BHU admission criteria. Concerns voiced from attendees included if the HII Score could be assessed by ED nursing staff and ensuring ED providers would review 12-lead ECGs prior to admission for evaluation of prolonged QT syndrome as part of the admission process. Framing this project as a national issue versus one solely at this organization also seemed to bring more acceptance of the challenges both departments face daily and led to brainstorming of potential solutions in the future during these meetings including ED providers assisting with interpreting 12-lead ECGs

and BHU being more willing to accept patients prior to completion of UA to promote workflow for both departments. Overall receptiveness to presentation of the new SMART Form change was positive.

Aim 3. Evaluate the impact of the adapted SMART Form on project hospital ED process and outcome measures (e.g., LOS, number of blood draws, number of ancillary tests) and staff satisfaction post-implementation of the adapted SMART Form.

Project guidelines for the evaluation of the SMART Form were developed and performed as described in the methods section in Chapter 3.

Objective 1. Evaluate compliance with utilization of the adapted SMART Form for patients presenting to the ED with a mental/behavioral health chief complaint over the 1 month project implementation timeframe from January to February 2023.

Review of charts for patients that were admitted to the BHU from January to February 2023 revealed that zero providers utilized the project hospital's BH Clearance, the project hospital's version of the SMART Form. Thus, the utilization rate of the SMART Form was 0% in January 2023.

Objective 2. Measure baseline LOS, number of blood draws, and other ordered ancillary test data for ED patients with a mental/behavioral health chief complaint over a 1 month timeframe from January to February 2022.

In January 2022, the project hospital's ED initiated a total 43 psychiatry consults. These 43 patients met the project inclusion criteria and were evaluated by a psychiatrist. Of these 43 patients, 22 patients (51%) were admitted to the BHU (see Appendix O). Patients ranged from 20 to 74 years of age with 12 (54.5%) identifying as male and 10 (45.5%) identified as female. Most

patients had documented insurance (95%) except for one who also refused to provide demographic details.

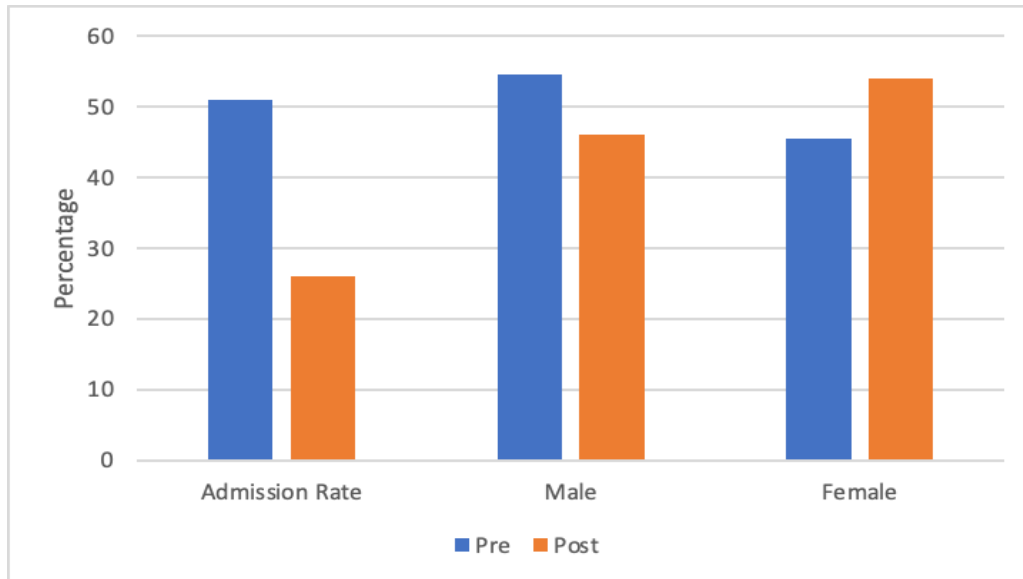
The data was evaluated using Jeffreys's Amazing Statistics Program (JASP) software. The mean ED LOS for these 22 admitted patients in January 2022 was $M = 6.314$ hours (see Appendix S). The mean number of blood draws was $M = 1.136$ (see Appendix T) and the mean number of ancillary tests was $M = 0.591$ (see Appendix U).

Objective 3. Compare pre to post changes in LOS, number of blood draws, and other ordered ancillary tests post-implementation of adapted SMART Form for the 1 month timeframe of the project implementation phase, January 2023 to February 2023.

In January 2023, the project hospital ED's initiated a total 46 psychiatry consults (see Appendix N). These 46 patients met the project inclusion criteria and were evaluated by a psychiatrist. Of these 46 patients, 12 patients (26%) were admitted to the BHU. One additional patient (2%) was admitted to the medical floor and was excluded from the data analysis. Patients ranged from 18 to 70 years of age with six (46%) identifying as male and seven (54%) identified as female. All patients (100%) had insurance. See Figure 2 below comparing pre and post demographic data. See Tables P1-P4 in Appendix V for full comparisons of pre- and post-implementation demographic data.

Figure 2

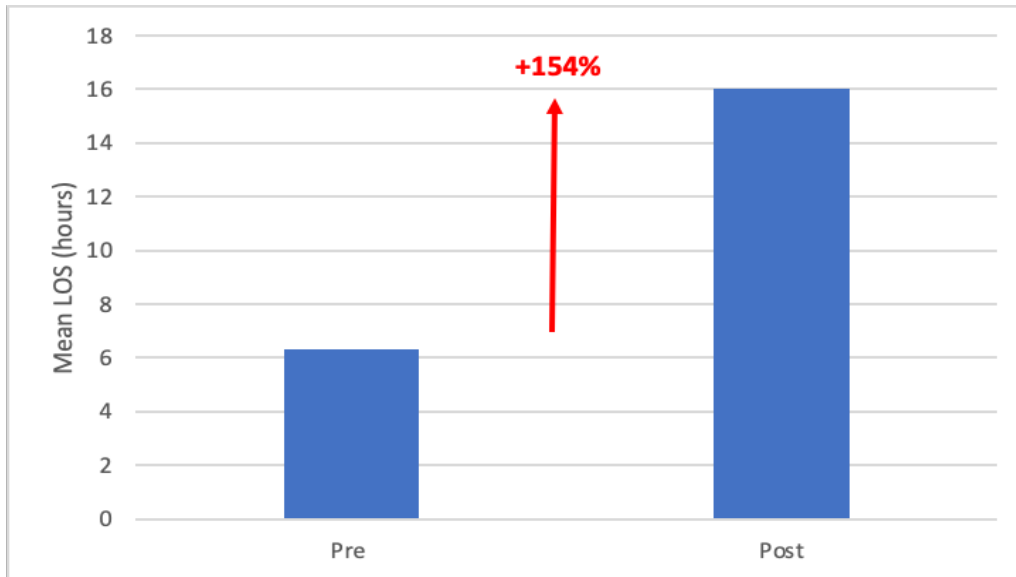
Comparison of demographic data regarding BHU admissions in January 2022 (Pre) and January 2023 (Post)



The post-implementation data was also evaluated using JASP software. The mean ED LOS of these 12 admitted patients in January 2023 was $M = 16.008$ hours (SD = 19.622 hours) (see Appendix S). The mean number of blood draws was $M = 2.5$ (see Appendix T) and the mean number of ancillary tests was $M = 0.417$ (see Appendix U). The pre- and post-means of each measurable outcome were compared to each other to evaluate the difference (see Figures 3, Figure 4, & Figure 5 below).

Figure 3

Comparison of the mean ED LOS for patients that were admitted to the BHU from January 2022 (Pre) and January 2023 (Post)

**Figure 4**

Comparison of the mean number of blood draws for ED patients that were admitted to the BHU from January 2022 (Pre) and January 2023 (Post)

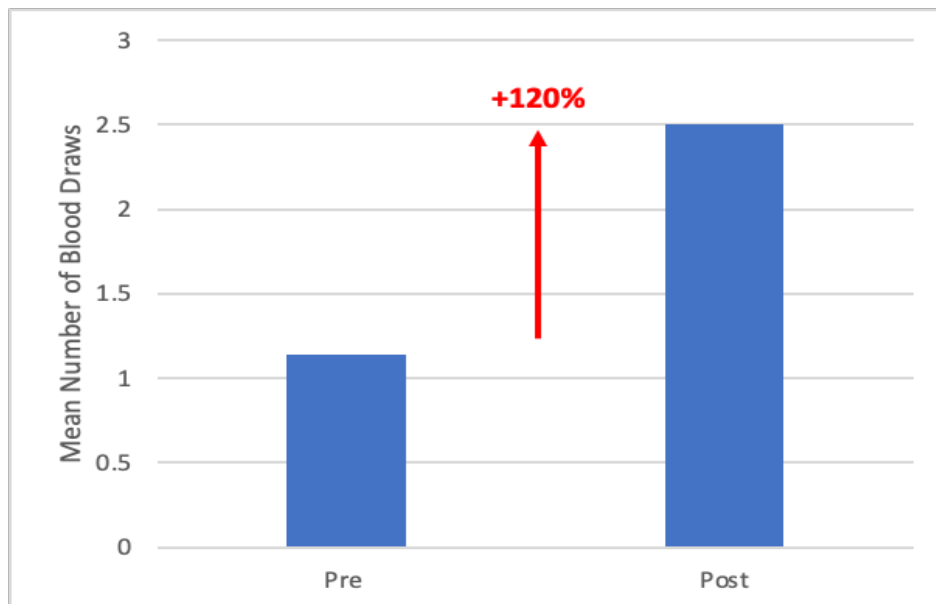
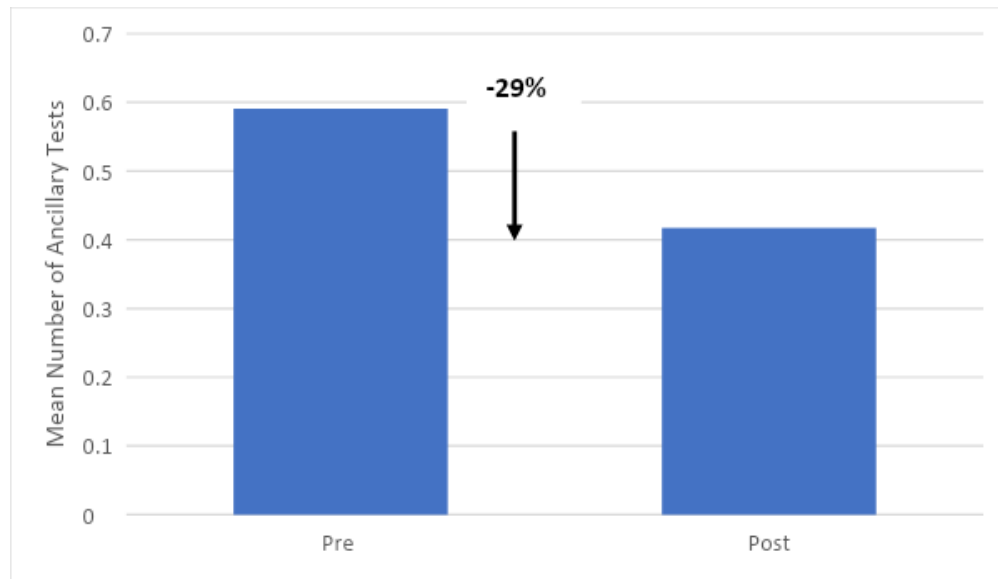


Figure 5

Comparison of the mean number of ancillary tests in ED for patients that were admitted to the BHU from January 2022 (Pre) and January 2023 (Post)



The mean LOS of the time period of January 2022 compared to the time period of January 2023 increased by 154% from an average LOS of 6.314 hours during the month of January 2022 to an average of 16.008 hours during the month of January 2023. The average number of blood draws also increased by 120% when comparing January 2022 to January 2023. However, the average number of ancillary tests decreased by 29% from January 2022 to January 2023.

An independent samples t-test was performed for each measured variable to determine if there is statistical evidence that the means of the pre- and post-implementation outcome variables are significantly different. The independent samples t-test was performed using JASP software for each variable. The post-implementation LOS for the 12 patients ($M = 16.008$, $SD = 19.622$) compared to the pre-implementation LOS for the 22 patients ($M = 6.314$, $SD = 5.285$) demonstrated the difference in the means is statistically significant, $t(32) = 2.201$, $p = 0.035$ (see

Appendix S). The post-implementation blood draws for the 12 patients ($M = 2.5$, $SD = 0.905$) compared to the pre-implementation blood draws for the 22 patients ($M = 1.136$, $SD = 0.990$) demonstrated the difference in the means is statistically significant, $t(32) = 3.951$, $p < 0.001$ (see Appendix T). The post-implementation ancillary tests for the 12 patients ($M = 0.417$, $SD = 0.515$) compared to the pre-implementation ancillary for the 22 patients ($M = 0.591$, $SD = 1.919$) demonstrated the difference in the means is statistically insignificant, $t(32) = -0.307$, $p = 0.761$ (see Appendix U).

Aim 4. Evaluate the impact of the adapted SMART Form on ED and BHU staff satisfaction post-implementation of the adapted SMART Form.

Project guidelines for the evaluation of staff satisfaction were developed and distributed as described in the methods section in Chapter 3.

Objective 1. Measure baseline staff satisfaction with the BHU admission process pre-implementation of the adapted SMART Form over a 2 week timeframe December 16, 2022 to December 30, 2022.

The pre-implementation survey was distributed via the project hospital's employee email to all BHU and ED providers including the telehealth psychiatric providers along with all staff of the BHU. However, the nurse manager of the ED declined to have her nurses participate in the survey so the survey was not sent to ED unit nursing staff including RNs, CNAs, and ED technicians. The SurveyMonkey link along with QR code to the SurveyMonkey link was included in the email to notify participants of the opportunity to complete the survey. The link was sent to a total of 55 individuals who met the inclusion criteria and 17 responses were received, resulting in a response rate of approximately 31%.

For the question “What is your role at HMC?”, seven were ED providers (41.18%), one BHU provider (5.88%), nine BHU staff (52.94%), and one administrator/manager (5.88%). See full data table in Appendix W. For the second question “How long have you been working at HMC in ED and/or BHU?”, two respondents were less than 1 year (11.76%), four respondents were 1 to 4 years (23.53%), seven respondents were 5 to 10 years (41.18%), and four respondents were more than 10 years (23.53%). For the question “In an average shift, how many patients with a chief complaint relating to a mental or behavioral health emergency do you care for?”, there was one response of less than one patient (5.88%), seven responses for one to three patients (41.18%), one response for four to seven patients (5.88%), and eight responses for eight or more patients (47.06%).

For “please select the biggest issue with BHU admissions from the ED?”, four respondents (23.53%) identified communication difficulties between the BHU and ED, two respondents (11.76%) chose unclear criteria for BHU admission, seven respondents (41.18%) chose long ED stay/boarding, and four respondents (23.53%) chose other. The four respondents that chose “Other” all identified that patients were not appropriately “medically cleared” and had underlying medical issues that were not addressed.

In response to the question, “How satisfied are you with the BHU admissions process and/or ED workflow?”, zero respondents were *very satisfied* or *very dissatisfied* with seven respondents (41.18%) reporting being *dissatisfied*, four respondents (23.53%) were *satisfied*, and seven respondents (35.29%) were *neutral*. In response to the question, “How satisfied are you with the communication between the ED and BHU regarding patient admission?”, three respondents (17.65%) were *satisfied*, five respondents (29.41%) were *neutral*, five respondents (29.41%) were *dissatisfied*, four (23.53%) were *very dissatisfied*, and zero were *very satisfied*. In

response to the question, “How satisfied are you with the length of stay of the mental/behavioral health patients in the ED prior to admission to the BHU?”, zero chose *very satisfied* or *very dissatisfied* while ten (58.82%) reported *dissatisfied*, six respondents (35.29%) were *neutral*, and one respondent (5.88%) was *satisfied*. In response to the final question “Do you have any other comments, questions, or concerns?” six written responses were received. Two responses were related to medical clearance issues such as admitting a COVID positive patient to the BHU and other underlying medical issues not being appropriately addressed (i.e., according to the BHU admission policy). Another response specifically mentioned BHU admission policies were not being followed. The response labeled as #2 mentioned the Behavioral Health Response (BHR) was a better way to facilitate BHU admissions. The BHR was a 24/7 RN who would report to the ED when a patient was accepted for BHU admission by the consulting psychiatrist to facilitate admissions to the BHU completing a medication reconciliation and physical assessment prior to transferring the patient to the BHU. The project hospital determined this was not cost effective and has since eliminated this position in 2018. The response labeled as #6 stated that there is little communication between the ED and BHU providers as this is usually handled by a social worker or charge RN. The last response was simply “none”.

Objective 2. Compare pre to post staff satisfaction with the BHU admission process post implementation of the SMART Form over a 2 week timeframe February 5 to February 19, 2023.

The post-implementation survey was distributed in the same manner as the pre-implementation survey and the ED nurse manager again declined to participate. The SurveyMonkey link along with QR code link to the survey was included in the email to notify participants of the opportunity to complete the survey. The link was sent to a total of 55

individuals and 11 responses (see Appendix W) were received, resulting in a response rate of approximately 19%.

For the first question “What is your role at HMC?”, five respondents were an ED provider (45.45%), one respondent was a BHU provider (9.09%) and five respondents were BHU staff (45.45%) (see Figure 6). For the second question “How long have you been working at HMC in ED and/or BHU?”, nine respondents were 5 to 10 years (81.82%), and two respondents were more than 10 years (18.18%) (see Figure 7 comparing pre to post data). See full data tables comparing pre to post data in Appendix W.

Figure 6

Comparison of roles in pre- and post-survey

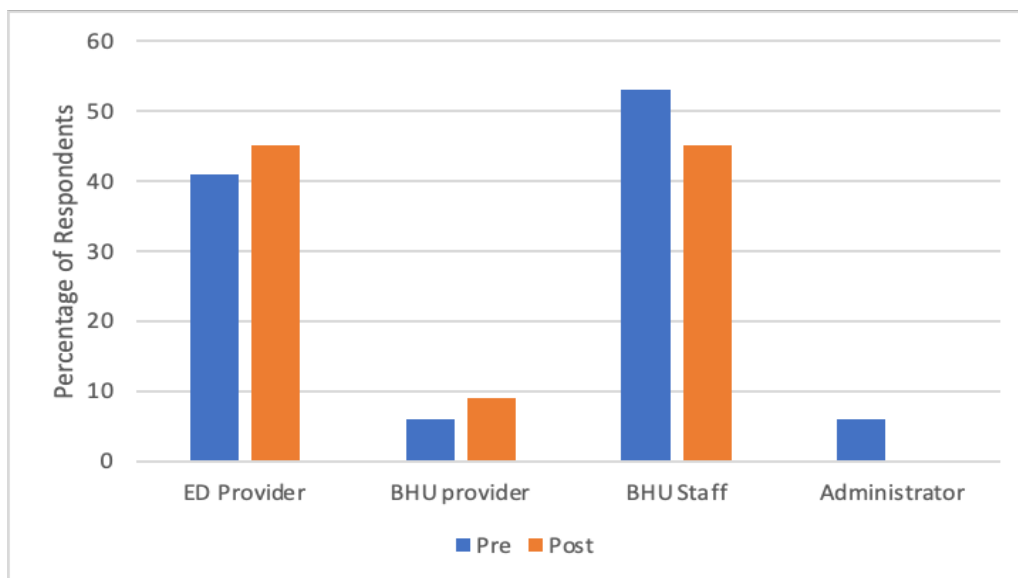
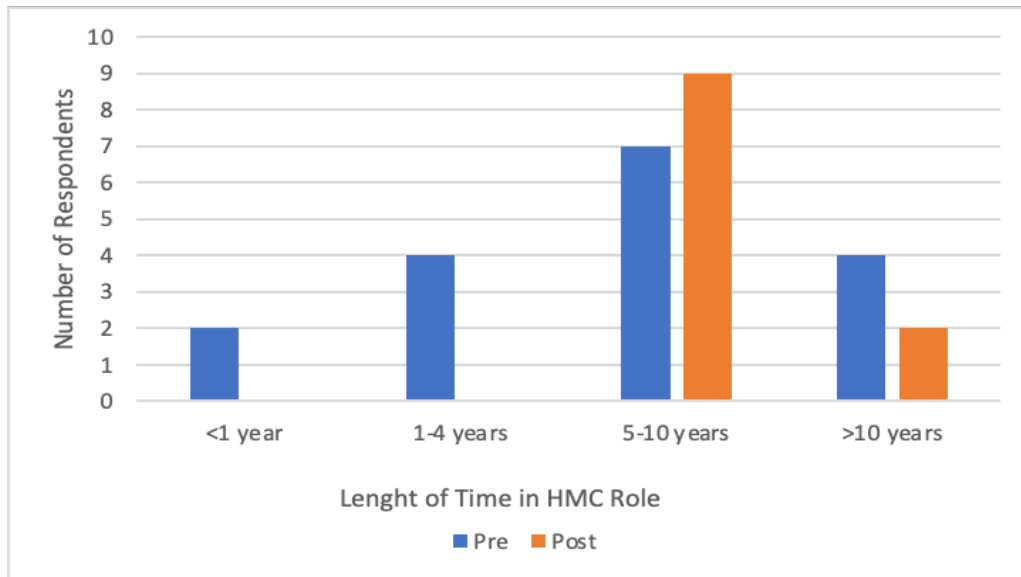


Figure 7

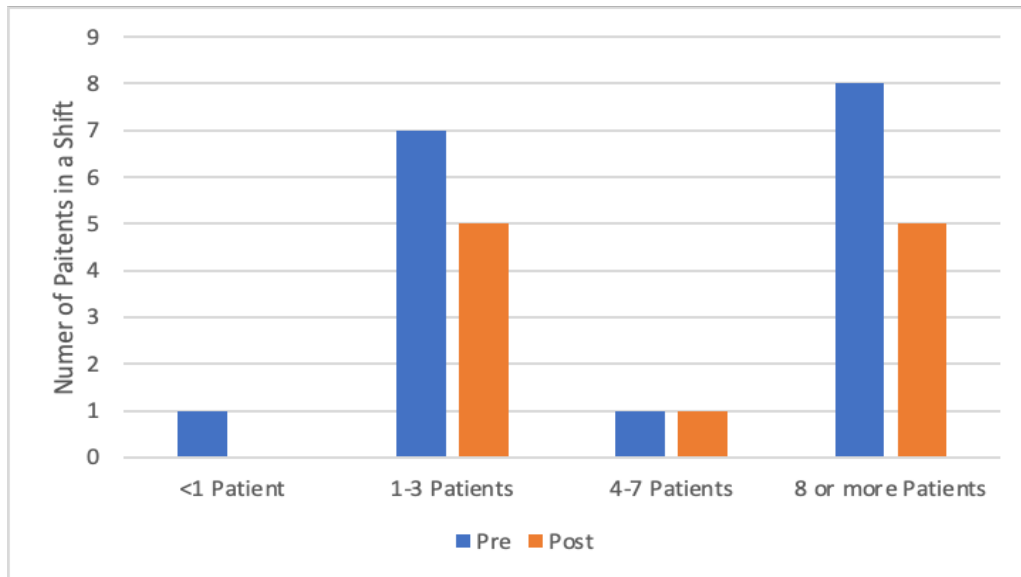
Comparison of length of time in role at HMC for respondents in pre- and post-survey



For the question “In an average shift, how many patients with a chief complaint relating to a mental or behavioral health emergency do you care for?”, there were five responses for one to three patients (45.45%), one response for four to seven patients (9.09%), and five responses for eight or more patients (45.45%). See Figure 8 below comparing pre to post data. See full data tables comparing pre to post data in Appendix W.

Figure 8

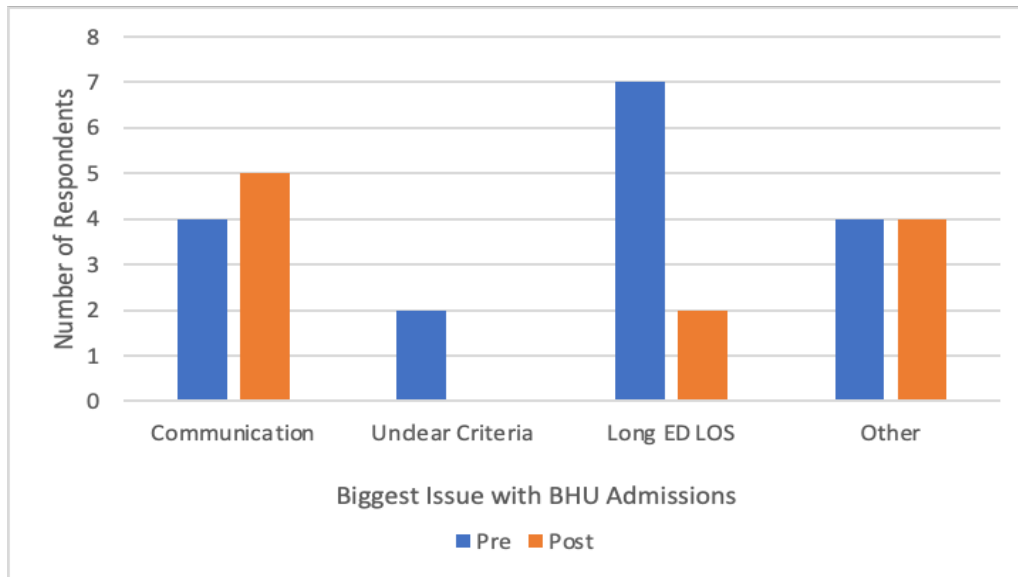
Comparison of pre- and post-survey responses regarding number of patients in an average shift



In response to the question, “please select the biggest issue with BHU admissions from the ED?”, five respondents (45.45%) identified communication difficulties between the BHU and ED, two respondents (18.18%) chose long ED stay/boarding, and four respondents (36.36%) chose “Other”. For the four respondents that chose “Other”, one described admission with “untreated medical issues”, two stated “not using the SMART Form” and/or it not appearing in the “ED report”, and the final response was “no change”. See Figure 9 below comparing pre to post data. See full data tables comparing pre to post data in Appendix W.

Figure 9

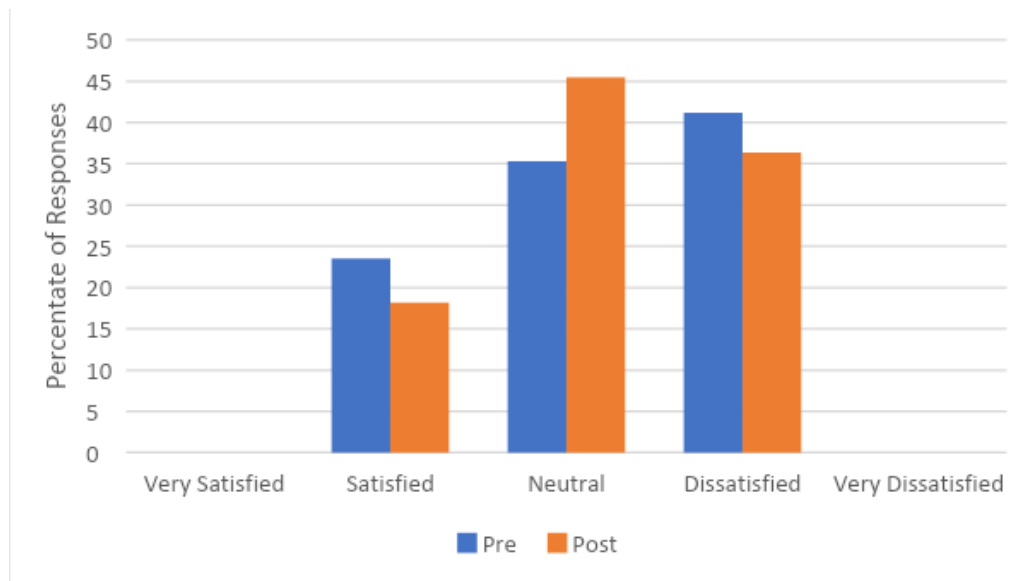
Comparison of respondent's selection of the biggest issue with BHU admission in the pre- and post-survey



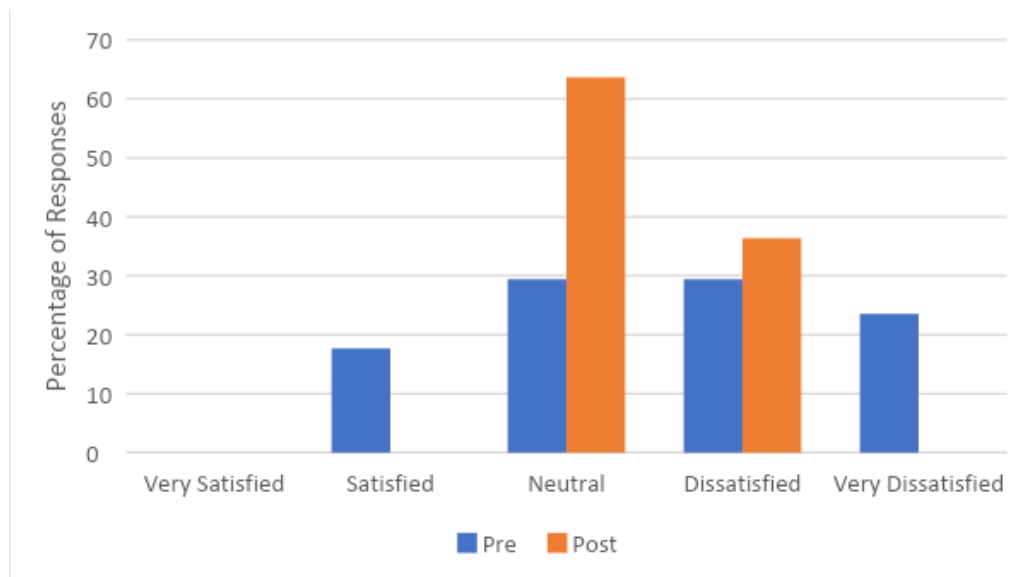
In response to the question, “How satisfied are you with the BHU admissions process and/or ED workflow?”, zero respondents were *very satisfied* or *very dissatisfied* with four respondents (36.36%) reporting *dissatisfied*, two respondents (18.18%) were *satisfied*, and five respondents (36.36%) were *neutral* (see Figure 10). In response to the question, “How satisfied are you with the communication between the ED and BHU regarding patient admission?”, seven respondents (63.64%) were *neutral*, four respondents (36.36%) were *dissatisfied* while there were zero responses for *very dissatisfied*, *satisfied*, or *very satisfied* (see Figure 11).

Figure 10

Comparison of staff survey results for question #5 regarding satisfaction with workflow

**Figure 11**

Comparison of staff satisfaction with communication between the ED and BHU pre- and post-implementation

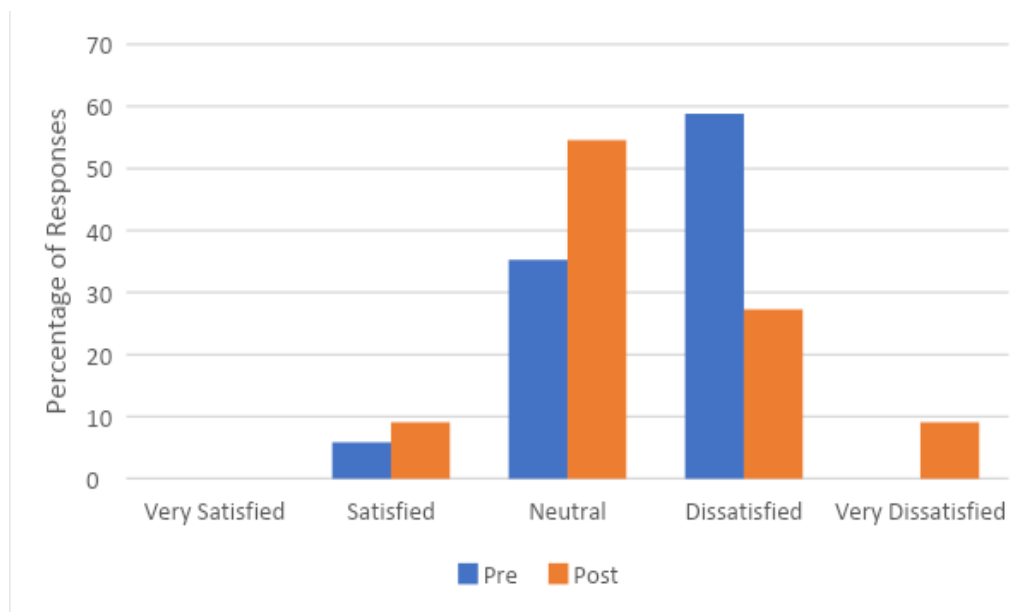


In response to the question “How satisfied are you with the length of stay of the mental/behavioral health patients in the ED prior to admission to the BHU?”, zero respondents

chose *very satisfied* while one respondent was *satisfied* (9.09%), six respondents were *neutral* (54.55%), three respondents reported *dissatisfied* (27.27%), and one respondent was *very dissatisfied* (9.09%) (see Figure 12).

Figure 12

Comparison of staff satisfaction with length of stay for mental/behavioral health patients in the ED pre- and post-implementation



In response to the final question, “Do you have anything you would change or add to the SMART Form or any other comments?”, there were six written responses. Three responses identified that the SMART Form was not being used, one response highlighted infectious disease in a community setting of the BHU, and another stated the SMART Form doesn’t seem to help communication to “dispo patients...as these are complicated by substance abuse.” The final response stated, “nothing at the moment.”

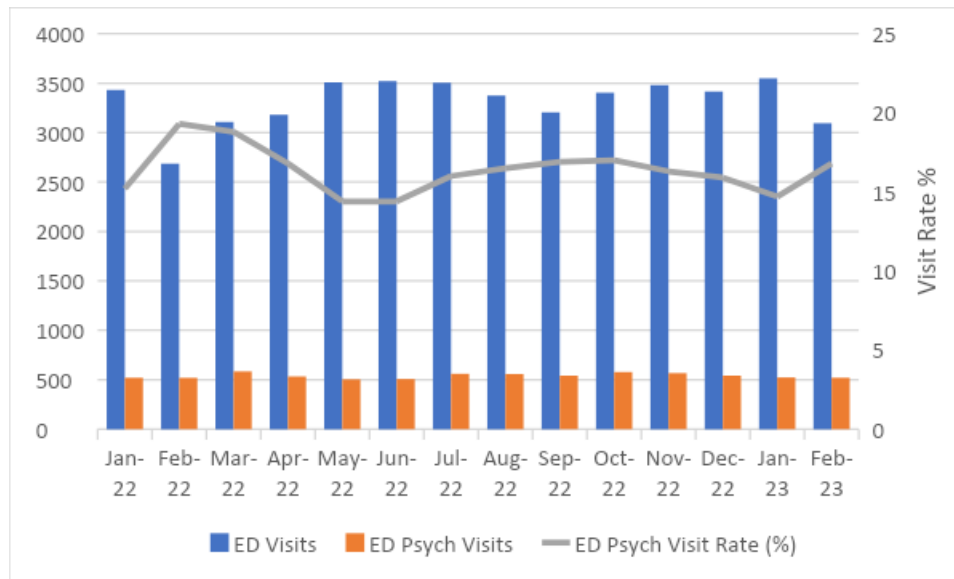
Chapter Five: Recommendations and Conclusions

Discussion of Results

The purpose and overarching goal of this project was to standardize and streamline the “medical clearance” process for patients presenting to the ED with a mental and/or behavioral emergency to ensure patients receive proper care in the appropriate setting as quickly and efficiently as possible. Based on statistical analysis using independent samples t-test, it was determined that for patients who met project inclusion criteria, which included qualifying for admission to the BHU, the change in ED LOS and number of blood draws increased from pre- to post-assessment and was statistically significant while the change in the number of ancillary tests was insignificant. In January 2022, the average ED LOS for patients who were admitted to the project hospital’s BHU was 6.314 hours whereas the average LOS for patients who were admitted to the project hospital’s BHU in January 2023 was approximately 16 hours. Hospital census data from both time periods was reviewed. January 2022 had 3,431 ED visits with 520 ED psychiatric visits and an ED psychiatric visit rate of 15.2%. January 2023 had a total of 3,548 ED visits with 523 ED psychiatric visits resulting in an ED psychiatric visit rate of 14.7% (see Figure 13). Important to note that January 2023 saw the greatest number of total ED visits with 3,548 visits (see Appendix X for hospital census data table).

Figure 13

Project hospital census data from January 2022 to February 2023 with number of ED visits, number of ED psychiatric, and ED psychiatric visit rate (%)



The literature demonstrates that increased ED census puts additional strain on ED resources regardless of visit type (Santillanes et al., 2019). The project hospital is experiencing a greater portion of mental health related visits ranging from 14.4% to 19.3% compared to the national average of 11.2% (Santillanes et al., 2019). Furthermore, the U.S. Census Bureau (2022) estimated an increase of 1.1% for Hawaii county population compared to a decrease of 0.6% for the entire state of Hawaii. In 2021, Hawaii county experienced an estimated 14.7% poverty rate compared to the state poverty rate of 11.2% (Creamer et al., 2022). This emphasizes the considerable pressure on the project hospital's ED with relation to mental health visits as well as increasing census due to increasing population and poverty rate that has the potential to exacerbate the county's primary care and mental health provider shortages. All of these factors in conjunction with the two outliers contributed to the increase in LOS seen in January 2023 and potentially have negative impacts on the ED LOS for the future if trends continue. Continued

examination of census trends for both units along with tracking of county population changes and primary healthcare needs will be useful in determining strategies for minimizing ED LOS for these patients.

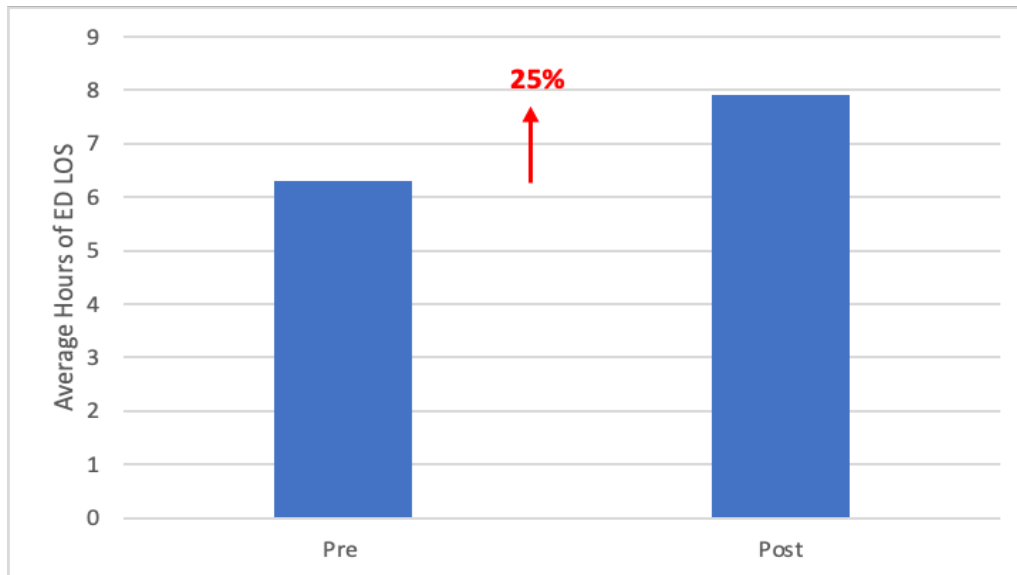
This increased ED boarding time/LOS could have then contributed to an increased number of ED blood draws as the ED completed BHU admission orders while waiting for a BHU bed. This was confirmed by BHU orders for lipid panels being drawn in the ED. The lipid panel was added as part of the BHU admission criteria in mid 2022. Assessing BHU patients' cholesterol levels was deemed necessary due to the nature of the medications associated with various psychiatric conditions that affect a patient's cholesterol and contribute to metabolic syndrome (Pillinger et al., 2020). Thus, due to the longer ED boarding times, there was an increased number of blood draws while patients remained in the ED as part of the BHU admission orders and were waiting to be transferred to the BHU. The data may also be skewed as there were 10 less patients that were admitted to the BHU compared to the previous year during the same timeframe despite the number of psychiatric consults during both time periods being roughly the same, 43 in January 2022 and 46 in January 2023. The decrease in patients admitted to the BHU in January 2023 compared to January 2022 remains unclear. One possible explanation is that there were different BHU directors in January 2022 and January 2023. Specialist TeleMed (STeM) providers, which are the telehealth psychiatrists, have been utilized by the project hospital for psychiatric consults since 2018, so a change in provider type is unlikely to be a factor. Another potential explanation was that the BHU admission policy was altered in March of 2022 to reflect the SMART Form with a clear list of inclusion and exclusion criteria for patients to be admitted to the BHU. This potentially could have contributed to more

patients being deemed unfit for admission to the BHU in January 2023. Regardless, this again illustrates the need to compare admissions over a longer, three month period in the future.

Nwaobiora (2017) found that the SMART Form resulted in a 14.9% decrease in ED LOS from 20.85 hours to 17.75 hours. It is important to note that this was from a hospital that was part of a large health network with multiple mental health facilities in the area to transfer patients to for admission compared to this project hospital's ED only having access to one mental health facility. The January 2023 ED LOS had two outliers of 64.5 hours and 48.6 hours. These two patients had chief complaints of suicide attempt via intentional overdose and manic episode, respectively. The intentional overdose required extended ED monitoring to determine appropriate placement as the BHU has minimal capability to monitor and handle acute medical needs resulting from an overdose and were boarded in the ED awaiting medical clearance prior to bed assignment. However, these two patients were eventually admitted to the BHU after the extended ED LOS and thus, were included in the data analysis. The ED LOS of these two patients significantly skewed the mean to the right due to the lesser number of patients admitted to the BHU compared to January 2022. This is evident by the fact that if these two outliers are removed from the data set, the new LOS mean is $M = 7.9$ hours compared to the 16.008 hours. Utilizing JASP software, the change in the two ED LOS is statistically insignificant when the two outliers are removed from the data set, $t(30) = 0.832, p = 0.412$. See Figure 14 below showing pre to post ED LOS data with the two outliers removed.

Figure 14

Comparison of the mean ED LOS from pre- and post-implementation without the two outliers from January 2023



Regardless of these results, the project hospital's pre-implementation ED LOS of 6.314 hours was much shorter than ED LOS of the hospital evaluated by Nwaobiora (2017). Thus, this project hospital's ED LOS is not long by comparison to the national average reported ED boarding time of 11.2 hours for behavioral and mental health patients according to Conigliaro et al. (2018). Another important comparison was evaluating the ED LOS of patients that were not admitted to the BHU. The average ED LOS for patients who were not admitted to the BHU was 11.71 hours in January 2022 and 20.65 hours in January 2023. This almost doubled ED LOS is important to investigate further as it correlates with the ED LOS for admitted patients increasing overall, throughout the hospital when comparing LOS in January 2022 to January 2023. Thus, it may be that there are other factors contributing to the increased LOS for all ED patients such as increased overall hospital census and lack of beds. The next step could be to evaluate ED LOS for all patients that are admitted compared to admitted BHU patients for a minimum of three

months. This would allow for the evaluation of trends of an increasing patient census and the effect on the ED while limiting the effect of outliers affecting the data. Reviewing previous year's censuses of both departments for each month helped to identify increasing ED visits and this may have contributed to increased LOS for January 2023. Further analysis of hospital census may indicate the need for expansion of the number of beds in specific departments. However, that is beyond the scope of this project.

The staff satisfaction surveys only showed minor variations between pre- and post-implementation. This was expected once it was evident that the SMART Form (or BH Clearance) was not utilized by ED providers. In comparing question #5, about satisfaction with workflow, there was a shift to *neutral* (45.45%) compared to the pre-survey respondents who indicated being more dissatisfied (41.18%) (see Figure 10 above). The minor shift from *dissatisfied* towards *neutral* may be due to the fact that both departments had more open communication regarding BHU admission criteria despite the fact that the LOS and number of blood draws increased by 154% and 120% respectively. Since the SMART Form was not used, these survey responses do not reflect satisfaction regarding the SMART Form and will need to be addressed in the future.

In response to Question #6 regarding satisfaction with communication: the pre-implementation results ranged from *satisfied* to *very dissatisfied* while the post-implementation showed only *neutral* or *dissatisfied* results (see Figure 11 above). The minor shift from *very dissatisfied* towards more *neutral* may be due to may again be attributed to the fact that both departments were communicating in meetings leading up to this project and had clearer perspectives of what each department needs and challenges each department faces daily. Again interestingly, staff satisfaction regarding LOS shifted towards more *neutral* with one respondent

that was *very dissatisfied* when compared to the baseline survey (see Figure 12 above). The minor shift from *dissatisfied* towards more *neutral* may be due to again the increased communication between departments during the project.

The qualitative comments from pre-surveys emphasized issues with ‘medically cleared’ and underlying medical conditions highlighting similar issues discussed in the literature regarding unclear admission process and clearance, and miscommunication between ED and psychiatric departments (Nordstrom et al., 2019; SSVMS, 2015; Tucci et al., 2017). Post-surveys continue to emphasize untreated medical conditions or complicated patient dispositions by substance abuse highlighting the need to use the SMART Form and further assessment of the application of the SMART Form for methamphetamine patients.

Review of the individual responses showed the shift from *dissatisfied* to more *neutral* was greatest among BHU staff from pre- to post-implementation whereas ED providers remained fairly *neutral* across all three questions. This may indicate that BHU staff’s satisfaction improved due to the fact that this project was initiated by the BHU in an attempt to improve communication and alleviate the tension between the two departments by ensuring ED patients met BHU admission criteria via implementation of the SMART Form for medical clearance. The ED providers’ satisfaction may have been unchanged due to the lack of utilizing the SMART Form and thus not making any considerable changes on ED LOS or workflow. Additionally, the low rate of pre- and post-survey responses, 31% and 19% respectively, could greatly affect the accuracy of true staff satisfaction results.

Based on the overall responses received from the surveys, it appears a more pressing and persistent area of concern is to ensure medical clearance is adequate while increasing communication between departments. Ensuring medical clearance is adequate and improving

communication between the ED and BHU was one of the purposes of creating and implementing the BH Clearance form (i.e., adapted SMART Form) which ultimately was not used as intended by the ED providers. An ED meeting took place on March 7, 2023 at which time these project results were presented and the future of this project was discussed. During the meeting ED providers stated that the reasons that the SMART Form was not utilized was because it was not part of their workflow with reminders in the EMR to complete the BH Clearance form prior to ordering a psychiatric consult and it was noted that the psychiatric STEM (telepsychiatry) providers were still providing pushback to the ED providers regarding initiating a consult until laboratory results from the CBC, BMP, and UA were posted. Prior to implementing the new BH Clearance/adapted SMART Form, the STEM providers had previously received training regarding the SMART Form and bypassing a complete laboratory testing. However, despite this, STEM providers continued to want full laboratory results (CBC, BMP, UA) prior to interviewing the patient for possible admission, thus ED providers reverted back to their previous workflow and did not incorporate the BH Clearance when they had mental/behavioral health patients. STEM providers will need further education on SMART Form/BH Clearance use in the future while also requiring ED providers to complete the BH Clearance form prior to being able to order a psychiatric consult. This requirement was not available for this project due to limitations of resources in the IT Department stemming from staffing issues at the time of this project's initiation (C. Takahashi, personal communication, December 10, 2022).

Project Barriers and Limitations

This project had considerable barriers and limitations that may have greatly affected the results. First, the SMART Form, renamed 'BH Clearance' in the project hospital's EMR, was not required to be completed by ED providers prior to initiating a psychiatric consult. Thus, ED

providers were not reminded in a daily workflow to complete the BH Clearance as part of the work up for patients with chief mental and/or behavioral complaints. A second limitation of this project was the condensed timeframe for implementation. A longer timeframe for data collection of at least 12 weeks would alleviate the ability of outliers to skew the data mean as seen in this project. This project also did not initially consider the hospital patient census, including of both the ED and BHU departments during the timeframe of this project's observation. Thus, it would be helpful to determine if the LOS was increased due to an increase in the overall daily hospital census and lack of availability of BHU beds to transfer patients once they were accepted for admission on a case-by-case basis.

Project Facilitators and Strengths

The standardization of the BHU admission policy for the project hospital that was aligned with the SMART Form helped to alleviate communication barriers between the ED and BHU with regard to BHU admission criteria as evidenced by post survey results showing generally increased staff satisfaction, especially with BHU staff, regarding workflow, communication, and ED LOS shifting from mostly *dissatisfied* to *neutral*. The multiple meetings between the two departments during this project seemed to alleviate communication tensions as both departments regularly communicated issues and facilitated dialogue to discuss solutions such as adding a required UA drug screen to the BH Clearance form (i.e., adapted SMART Form) in the future and evaluation of a 12-lead electrocardiogram (ECG) to be interpreted by ED providers to evaluate for QT prolongation in BHU patients as part of the BHU admission orders. Many psychotropic medications carry a side effect of QT prolongation and related cardiac arrhythmias (Wenzel-Seifert et al., 2011). Thus, it is extremely helpful to BHU providers to ensure patients are screened for QT prolongation prior to admission. This project's emphasis on bringing both

departments together to discuss BHU admission policies and processes seemed to alleviate some dissatisfaction felt by staff outside of the intended goal of the project which was for the ED providers to utilize the SMART Form to medically clear patients presenting to the ED with a mental/behavioral health chief complaint.

Current and Future Implications for Practice

There are considerable gaps in this project due to the inability to implement some of the project methods as designed, which should be reviewed by the project hospital. Specifically, the complete lack of use of the adapted SMART Form titled 'BH Clearance' in the EMR indicates that the project results are not an appropriate reflection of the effectiveness of the adapted SMART Form. Since the current process allowed for ED providers to revert back to previous workflows, the next step is to require the SMART Form (BH Clearance) be completed prior to being able to order a psychiatric consult. This requirement of the BH Clearance form would then be an accurate reflection of the effectiveness of the SMART Form assisting the project hospital's ED providers in the 'medical clearance' process. Another implication to consider would be the use of other measurable outcomes aside from ED LOS since, as previously discussed, was problematic for the project hospital as there is only one mental health facility to accept patients and it is limited on the number of available beds. Thus, a possible solution better tailored for the project hospital might be to evaluate the time of arrival at the ED until the psychiatric consult is ordered. These two vital steps would require the project hospital's IT department to include the BH Clearance form as part of the process of ordering the psychiatric consult and utilizing the project hospital's Decision Support Department to run the necessary reports to determine the time from a patient's arrival at the ED until the psychiatric consult is placed. The pre and post data collection and analysis methods could be the same as previously described in Chapter 3.

Another implication specific to the project hospital's patient population discussed at the ED meeting on March 7, 2023 was the implication of patients that present to the ED with a mental/behavioral crisis that currently have methamphetamines in their system. The ED providers were interested in how the BHU providers felt the SMART Form could be applied to these specific patients as once the methamphetamines clear out of the patient's system, the majority of the mental/behavioral symptoms disappear and these patients are not necessarily willing to enter drug rehabilitation. This is a future topic that will need to be researched with a literature review and further discussions had between the two departments.

Dissemination Plans

The project findings were shared with project hospital's ED and BHU departments along with the project hospital's director of quality. A phone meeting was conducted with the ED nurse manager as well to discuss nursing's role in this project in the future. The recommendations for further evaluation were discussed to further explore the effectiveness of the adapted SMART Form (or BH Clearance) as it relates to this specific healthcare facility and to pursue publication of the results in the future. This project added valuable information with regards to the gaps in literature that were previously discussed and identified alternative measurable outcomes that are specific to this project's hospital to determine success of implementation of an adapted SMART Form. Additionally, this project's final manuscript will be submitted for future reference to HOKU, the University of Hawaii at Hilo institutional repository administered by the Edwin H. Mookini Library and maintained by the Hamilton Library of the University of Hawai'i at Manoa.

Conclusion

The SMART Form has had considerable success in other health networks with literature gaps regarding use of other ED resources and staff satisfaction. This project demonstrated that

the perceived issue of patients boarding in the ED may not be the greatest source of frustration and emphasized the continued barriers to implementing evidence-based practice. This project was not successful in implementing the utilization of an adapted SMART Form as there were no “requirements” for the form to be used in the ED provider’s daily workflow. However, staff satisfaction did shift to a more *neutral* position regarding ED workflow, communication between the ED and BHU, and the ED LOS of patients admitted to the BHU. The next steps to continue to improve all three areas would be to ensure that the adapted SMART Form is required prior to ordering psychiatric consults, evaluating if the SMART Form reduces length of time before a patient with a mental and/or behavioral chief complaint is evaluated by psychiatry, and continuing to assess how increased census will affect both departments to develop creative solutions to address increased LOS when overall hospital census is high as well as address the above average proportion of mental health related ED visits at the project hospital.

References

- Anderson, E. L., Nordstrom, K., Wilson, M. P., Peltzer-Jones, J. M., Zun, L., Ng, A., & Allen, M. H. (2017). American association for emergency psychiatry task force on medical clearance of adults part I: Introduction, review and evidence-based guidelines. *Western Journal of Emergency Medicine*, *18*(2), 235–242.
<https://doi.org/10.5811/westjem.2016.10.32258>
- Conigliaro, A., Benabbas, R., Schnitzer, E., Janairo, M.-P., & Sinert, R. (2018). Protocolized laboratory screening for the medical clearance of psychiatric patients in the emergency department: A systematic review. *Academic Emergency Medicine*, *25*(5), 566–576.
<https://doi.org/10.1111/acem.13368>
- Creamer, J., Shrider, E. A., Burns, K., & Chen, F. (2022). *Poverty in the United States: 2021* (No. P60-277). U.S. Census Bureau.
<https://www.census.gov/library/publications/2022/demo/p60-277.html>
- Eide, S., & Gorman, C. D. (2021, February 18). *Medicaid's IMD exclusion: The case for repeal*. Manhattan Institute. <https://www.manhattan-institute.org/medicaids-imd-exclusion-case-repeal>
- Good, B., Walsh, R. M., Alexander, G., & Moore, G. (2014). Assessment of the acute psychiatric patient in the emergency department: Legal cases and caveats. *Western Journal of Emergency Medicine*, *15*(3), 312–317. <https://doi.org/10.5811/westjem.2013.8.18378>
- Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions*, *26*(1), 13–24. <https://doi.org/10.1002/chp.47>

- Guttman, A., Schull, M. J., Vermeulen, M. J., & Stukel, T. A. (2011). Association between waiting times and short term mortality and hospital admission after departure from emergency department: Population based cohort study from Ontario, Canada. *The BMJ*, 342, d2983. <https://doi.org/10.1136/bmj.d2983>
- Haugh R. (2006). Stressed out: As communities cut services, payers cut funding and psychiatric centers cut beds or close completely, mental-health patients have nowhere to go but your ED. *H&HN: Hospitals & Health Networks*, 80(6), 50–54.
- Hawai'i Health Data Warehouse. (2023, March 2). *Hawai'i IBIS - Query Result - Hawaii's Behavioral Risk Factor Surveillance System (BRFSS) Data - Health - mental bad past 30 days*. Hawaii State Department of Health. Retrieved May 1, 2023, from https://hhdw.org/report/query/result/brfss/MentHlthDays/MentHlthDaysCrude11_.html
- Hawaii Health Systems Corporation. (n.d.) *Hilo Medical Center*. Retrieved March 11, 2022 from <https://www.hilomedicalcenter.org/our-services/emergency-department/>
- Health Resources & Services Administration. (2003). *MUA find*. <https://data.hrsa.gov/tools/shortage-area/mua-find>
- Hudson, C. G. (2021). Benchmarks for Needed Psychiatric beds for the United States: A test of a predictive analytics model. *International Journal of Environmental Research and Public Health*, 18(22), 12205. <https://doi.org/10.3390/ijerph182212205>
- Kaiser Family Foundation. (2020a). *Health insurance coverage of the total population*. <https://www.kff.org/other/state-indicator/total-population/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

Kaiser Family Foundation (2020b). Kaiser Family Foundation analysis of Substance Abuse and Mental Health Services Administration (SAMHSA)'s restricted online data analysis system (RDAS), National Survey on Drug Use and Health (NSDUH), 2017 and 2018, Substance Abuse and Mental Health Data Archive. <https://www.kff.org/state-category/mental-health/>

Levin-Epstien, M. (2015, November 18). *Psych units in the ED: Trend, solution, or neither?* Retrieved November 2, 2020, from <https://epmonthly.com/article/psych-units-in-the-ed-trend-solution-or-neither/>

Li, Z., Harrison, S. E., Li, X., & Hung, P. (2021). Telepsychiatry adoption across hospitals in the United States: A cross-sectional study. *BMC Psychiatry, 21*.
<https://doi.org/10.1186/s12888-021-03180-8>

Libet, L., Balan, Y., & Thomas, S. (2018). Chapter 7: The myth of medical clearance. In Y. Balan, K. Murrell, & C. B. Lentz, *Big Book of Emergency Department Psychiatry* (p. 12). CRC Press.

Lutterman, T., Shaw, R., Fisher, W., & Manderscheid, R. (2017). *Trend in Psychiatric Inpatient Capacity, United States and Each State, 1970 to 2014* (Assessment #2). National Association of State Mental Health Program Directors.
https://www.nasmhpd.org/sites/default/files/TACPaper.2.Psychiatric-Inpatient-Capacity_508C.pdf

Madsen, T. E., Bennett, A., Groke, S., Zink, A., McCowan, C., Hernandez, A., Knapp, S., Byreddy, D., Mattsson, S., & Quick, N. (2009). Emergency department patients with psychiatric complaints return at higher rates than controls. *Western Journal of Emergency Medicine, 10*(4), 268–272.

Medford-Davis, L., Moukaddam, N., Matorin, A., Shah, A., & Tucci, V. (2018). True costs of medical clearance: Accuracy and disagreement between psychiatry and emergency medicine providers. *Journal of Emergencies, Trauma & Shock*, *11*(2), 130–134.

https://doi.org/10.4103/JETS.JETS_125_16

Nicks, B. A., & Manthey, D. M. (2012). The impact of psychiatric patient boarding in emergency departments. *Emergency Medicine International*, *2012*.



<https://doi.org/10.1155/2012/360308>

Nordstrom, K., Berlin, J. S., Nash, S. S., Shah, S. B., Schmelzer, N. A., & Worley, L. L. M. (2019). Boarding of mentally ill patients in emergency departments: American Psychiatric Association resource document. *Western Journal of Emergency Medicine*, *20*(5), 690–695. <https://doi.org/10.5811/westjem.2019.6.42422>

Nwaobiora, C. J. (2017). The SMART medical clearance protocol as a standardize clearance protocol for psychiatric patients in the emergency department. *International Journal of Current Research*, *9*(9), 57140–57147.

Olshaker, J. S., Browne, B., Jerrard, D. A., Prendergast, H., & Stair, T. O. (1997). Medical clearance and screening of psychiatric patients in the emergency department. *Academic Emergency Medicine*, *4*(2), 124–128. <https://doi.org/10.1111/j.1553-2712.1997.tb03718.x>

Parmar, P., Goolsby, C. A., Udompanyanan, K., Matesick, L. D., Burgamy, K. P., & Mower, W. R. (2012). Value of mandatory screening studies in emergency department patients cleared for psychiatric admission. *Western Journal of Emergency Medicine*, *13*(5), 388–393. <https://doi.org/10.5811/westjem.2012.1.6754>

- Parwani, V., Tinloy, B., Ulrich, A., D'Onofrio, G., Goldenberg, M., Rothenberg, C., Patel, A., & Venkatesh, A. K. (2018). Opening of psychiatric observation unit eases boarding crisis. *Academic Emergency Medicine*, 25(4), 456–460. <https://doi.org/10.1111/acem.13369>
- Pillinger, T., McCutcheon, R. A., Vano, L., Mizuno, Y., Arumham, A., Hindley, G., Beck, K., Natesan, S., Efthimiou, O., Cipriani, A., & Howes, O. D. (2020). Comparative effects of 18 antipsychotics on metabolic function in patients with schizophrenia, predictors of metabolic dysregulation, and association with psychopathology: A systematic review and network meta-analysis. *The Lancet. Psychiatry*, 7(1), 64–77. [https://doi.org/10.1016/S2215-0366\(19\)30416-X](https://doi.org/10.1016/S2215-0366(19)30416-X)
- , S. R., Vaughns, F. L., Gautreau, M. A., Cogdell, M. W., & Meisel, Z. (2014). A Cross-sectional study of emergency department boarding practices in the United States. *Academic Emergency Medicine*, 21(5), 497–503. <https://doi.org/10.1111/acem.12375>
- Rasouli, H. R., Aliakbar Esfahani, A., & Abbasi Farajzadeh, M. (2019a). Challenges, consequences, and lessons for way-outs to emergencies at hospitals: A systematic review study. *BMC Emergency Medicine*, 19(1), 62. <https://doi.org/10.1186/s12873-019-0275-9>
- Rasouli, H. R., Esfahani, A. A., Nobakht, M., Eskandari, M., Mahmoodi, S., Goodarzi, H., & Abbasi Farajzadeh, M. (2019b). Outcomes of crowding in emergency departments: A systematic review. *Archives of Academic Emergency Medicine*, 7(1). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6785211/>
- Santillanes, G., Axeen, S., Lam, C. N., & Menchine, M. (2019). National trends in mental health-related emergency department visits by children and adults, 2009–2015. *The American Journal of Emergency Medicine* , 38(12), 2536–2544. <https://doi.org/10.1016/j.ajem.2019.12.035>

- Sierra Sacramento Valley Medical Society. (2015, July 28). *Crisis in the emergency department: Removing barriers to timely and appropriate mental health treatment*. Retrieved July 16, 2022 from http://smartmedicalclearance.org/wp-content/uploads/2017/09/ssvms-crisis_in_the_emergency_dept.pdf
- Sierra Sacramento Valley Medical Society. (2022). *SMART medical clearance: A project of the Sierra Sacramento Valley Medical Society*. Sierra Sacramento Valley Medical Center. Retrieved March 11, 2022 from <http://smartmedicalclearance.org>
- Sierra Sacramento Valley Medical Society. (n.d.). *About us*. Retrieved August 29, 2022 <http://www.ssvms.org/about-us.aspx>
- Substance Abuse and Mental Health Services Administration. (2022). *Key substance use and mental health indicators in the United States: Results from the 2021 National Survey on Drug Use and Health* (HHS Publication No. PEP22-07-01-005, NSDUH Series H-57). Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved May 2, 2023 from <https://www.samhsa.gov/data/report/2021-nsduh-annual-national-report>
- Substance Abuse and Mental Health Services Administration. (2023, March 8). *2019 National Survey on Drug Use and Health: Model-Based Estimated Totals (in Thousands) (50 States and the District of Columbia)*. Retrieved May 2, 2023 from <https://www.samhsa.gov/data/sites/default/files/reports/rpt39466/2021NSDUHsaeTotals121522/2021NSDUHsaeTotals121522.pdf>
- Talen, M.R., Baumer, J.G., Mann, M.M. (2013). Screening measures in integrated behavioral health and primary care settings. In M. Talen & A. Burke Valeras (Eds.), *Integrated*

- Behavioral Health in Primary Care*. Springer, New York, NY.
https://doi.org/10.1007/978-1-4614-6889-9_12
- Thrasher, T. W., Rolli, M., Redwood, R. S., Peterson, M. J., Schneider, J., Maurer, L., & Replinger, M. D. (2019). 'Medical clearance' of patients with acute mental health needs in the emergency department: A literature review and practice recommendations. *WMJ*, *118*(4), 9.
- Tucci, V. T., Moukaddam, N., Alam, A., & Rachal, J. (2017). Emergency department medical clearance of patients with psychiatric or behavioral emergencies, Part 1. *Psychiatric Clinics of North America*, *40*(3), 411–423. <https://doi.org/10.1016/j.psc.2017.04.001>
- University of Hawaii. (2022). *Annual report on findings from the Hawai'i physician workforce assessment project*. <https://www.ahec.hawaii.edu/workforce-page/>
- U.S. Centers for Medicare and Medicaid Services. (2023, February). *State Medicaid and CHIP Applications, Eligibility Determinations, and Enrollment*. U.S. Department of Health and Human Services. <https://data.medicaid.gov/dataset/6165f45b-ca93-5bb5-9d06-db29c692a360>
- U.S. Census Bureau. (2022, July 22). *Population and Housing Unit Estimates*. Retrieved March 4, 2023, from <https://www.census.gov/programs-surveys/popest.html>
- Wenzel-Seifert, K., Wittmann, M., & Haen, E. (2011). QTc prolongation by psychotropic drugs and the risk of torsade de pointes. *Deutsches Ärzteblatt International*, *108*(41), 687–693. <https://doi.org/10.3238/arztebl.2011.0687>
- Williams, E. R., & Shepherd, S. M. (2000). Medical clearance of psychiatric patients. *Emergency Medicine Clinics of North America*, *18*(2), 185–198. [https://doi.org/10.1016/S0733-8627\(05\)70117-6](https://doi.org/10.1016/S0733-8627(05)70117-6)

- Wilson, M. P., Nordstrom, K., Anderson, E. L., Ng, A. T., Zun, L. S., Peltzer-Jones, J. M., & Allen, M. H. (2017). American Association for Emergency Psychiatry task force on medical clearance of adult psychiatric patients part II: Controversies over medical assessment, and consensus recommendations. *Western Journal of Emergency Medicine*, *18*(4), 640–646. <https://doi.org/10.5811/westjem.2017.3.32259>
- Zhang, H., Khan, A., Chen, Q., Larsson, H., & Rzhetsky, A. (2021). Do psychiatric diseases follow annual cyclic seasonality? *PLOS Biology*, *19*(7), e3001347. <https://doi.org/10.1371/journal.pbio.3001347>

Appendix A

SSVMS SMART Form

SMART Medical Clearance Form

	No*	Yes	Time Resolved
S uspect <u>New Onset</u> Psychiatric Condition?	1		
M edical Conditions that Require Screening?	2		
Diabetes (FSBS less than 60 or greater than 250)			
Possibility of pregnancy (age 12-50)			
Other complaints that require screening			
A bnormal:	3		
Vital Signs?			
Temp: greater than 38.0°C (100.4°F)			
HR: less than 50 or greater than 110			
BP: less than 100 systolic or greater than 180/110 (2 consecutive readings 15 min apart)			
RR: less than 8 or greater than 22			
O ₂ Sat: less than 95% on room air			
Mental Status?			
Cannot answer name, month/year and location (minimum A/O x 3)			
If clinically intoxicated, HII score 4 or more? (next page)			
Physical Exam (unclothed)?			
R isky Presentation?	4		
Age less than 12 or greater than 55			
Possibility of ingestion (screen all suicidal patients)			
Eating disorders			
Potential for alcohol withdrawal (daily use equal to or greater than 2 weeks)			
Ill-appearing, significant injury, prolonged struggle or "found down"			
T herapeutic Levels Needed?	5		
Phenytoin			
Valproic acid			
Lithium			
Digoxin			
Warfarin (INR)			

* If ALL five SMART categories are checked "NO" then the patient is considered medically cleared and no testing is indicated. If ANY category is checked "YES" then appropriate testing and/or documentation of rationale must be reflected in the medical record and time resolved must be documented above.

Date: _____ Time: _____ Completed by: _____, MD/DO
Signature Print



List of Abbreviations

A/O x 3	Alert and Oriented x 3 (person, place and time)
FSBS	Finger Stick Blood Sugar
HII Score	H-Impairment Index Score
INR	International Normalized Ratio
O ₂ Sat	blood oxygen saturation



H-Impairment Index (HII Score)

Time	0)	1)	2)	3)	4)
Gross Motor Function					
Unable to cooperate; cannot sit up	4	4	4	4	4
Can sit up, but unsteady	3	3	3	3	3
Can sit up steadily	2	2	2	2	2
Can stand and walk, but unsteady	1	1	1	1	1
Can stand and walk steadily	0	0	0	0	0
Mentation and Speech					
Unable to cooperate; unintelligible speech/moans	4	4	4	4	4
Slurred speech; does not make sense	3	3	3	3	3
Slurred speech; answers some questions	2	2	2	2	2
Imperfect speech; answers most questions	1	1	1	1	1
Baseline speech; lucid and appropriate	0	0	0	0	0
Tracing Curve					
Unable to participate	4	4	4	4	4
Makes mark on paper	3	3	3	3	3
Traces mostly out side of line	2	2	2	2	2
Traces mostly inside lines	1	1	1	1	1
Traces curve perfectly	0	0	0	0	0
Nystagmus					
Unable to participate	4	4	4	4	4
Profound nystagmus / can't follow finger with eyes	3	3	3	3	3
Moderate nystagmus/ follows finger for short distance only	2	2	2	2	2
Minimal nystagmus/follows finger with eyes whole time	1	1	1	1	1
No nystagmus/ follows finger with eyes whole time	0	0	0	0	0
Finger to Nose Testing					
Unable to participate	4	4	4	4	4
Grossly unsteady/misses targets	3	3	3	3	3
Unsteady and inaccurate/barely touches targets	2	2	2	2	2
Steady/ touches targets, but inaccurate	1	1	1	1	1
Steady/ accurately touches targets	0	0	0	0	0
Total Score					
Health Care Provider Initials					

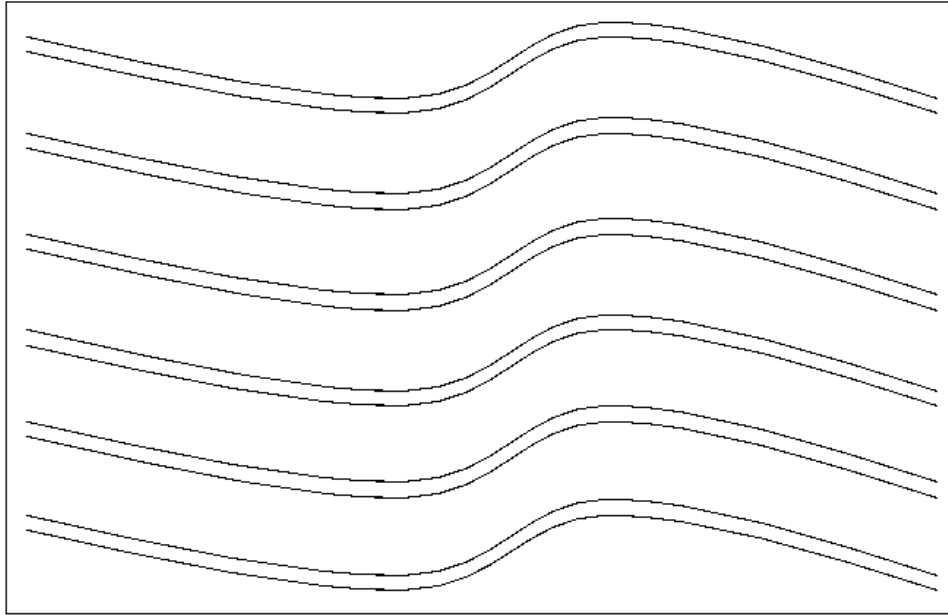
Scoring Reference

Gross Motor Function			Mentation and Speech			Tracing Curve		
Unable to cooperate; cannot sit up		4	Unable to cooperate; unintelligible speech or only moans	4	Unable to participate		4	
Can sit up, but is wobbly		3	Slurred speech; does not make sense	3	Makes mark on paper		3	
Can sit up and is steady, but cannot walk		2	Slurred speech; answers few questions appropriately	2	Traces mostly out side of line		2	
Can stand or walk, but is unsteady		1	Imperfect speech; answers most questions appropriately	1	Traces mostly inside line		1	
Can stand and walk and is steady		0	Normal or fluent speech; converses and appropriate	0	Traces curve perfectly		0	

Nystagmus			Finger to Nose Testing		
Unable to participate		4	Unable to participate		4
Profound nystagmus; unable to follow finger with eyes		3	Grossly unsteady; Misses finger to target		3
Moderate nystagmus; only follows finger with eyes for short distance		2	Unsteady; Inaccurate/barely touches target		2
Minimal nystagmus; follows finger with eyes whole time		1	Steady; Inaccurate but touches target		1
No nystagmus; Follows finger with eyes whole time		0	Steady; Accurate finger to target		0



Tracing Curve





Time:



Appendix B

Wisconsin SMART Form

Figure. Wisconsin SMART Form

WISCONSIN "SMART" FORM

Criteria:	NO*	YES	RESOLVED (TIME)
SUSPECT New Onset Psychiatric Condition?	S		
Other MEDICAL Conditions that Require Screening?	M		
-Diabetes (FSBG <60 or >250)			
-Possibility of pregnancy (age 12-50)			
-Other non-psychiatric medical complaints that require screening			
ABNORMAL?	A		
-Vital Signs?			
-Temp: greater than 38°C (100.4°F)			
-HR: less than 50 or greater than 110 bpm.			
-BP: Systolic <100 or >180mm Hg. Diastolic >110mm Hg. (2 consecutive)			
-RR: less than 8 or greater than 22 rpm.			
-O ₂ Sat: less than 95% on room air.			
-Mental Status?			
-Cannot answer name, month/year, and location (minimum of A/O X 3)			
-If clinically intoxicated, HII score of 4 or more (see next page)			
-Physical Exam (unclothed)?			
RISKY Presentation?	R		
-Age less than 12 or greater than 55			
-Possibility of ingestion (screen all suicidal patients)			
-Presence of Eating Disorders			
-Potential for alcohol withdrawal (daily use equal to or greater than 2 weeks; past complicated withdrawal)			
-Ill appearing, significant injury, prolonged struggle, or "found down"			
-Trauma involved in presentation (head injuries, assaultive behavior, cutting, ligature, s/p MVAs or hanging)			
THERAPEUTIC Levels Needed?	T		
-Phenytoin			
-Valproic Acid			
-Lithium			
-Digoxin			
-Warfarin (INR)			
-Other (Other anticonvulsants, Clozapine, TCAs, etc.)			

"If all five SMART categories are checked "NO", then the patient is considered medically stabilized and no further testing is needed. If ANY category is checked "YES", then appropriate testing and/or communication between physicians needs to occur with appropriate documentation and time that the issue was resolved.


Date: _____ **Time:** _____ **Completed by:** _____, MD/DO
Signature Printed

NOTE: If there is any lack of agreement between the Emergency Medicine Physician and the Psychiatrist on the above results, then an immediate phone conversation (between the two providers) is expected to occur to resolve the situation and come to a consensus plan.

An answer of "no" to each of the elements indicates that no further diagnostic testing is needed to the medical assessment of a patient with mental health crisis. A "yes" answer to a category indicates that further testing may be warranted. Regardless of whether testing is performed, any "yes" answer should be communicated to the receiving facility's physician along with appropriate documentation of the time and manner in which the issue was resolved.

Appendix C

Permission to use KTA Model from Dr. Graham



Megan Sedig <mstedig@hawaii.edu>

RE: KTA Permission
1 message

Ian Graham <igraham@ohri.ca>
To: Megan Sedig <mstedig@hawaii.edu>

Tue, Sep 13, 2022 at 5:41 AM

Hi Megan, thanks for your email. happy to provide permission. You should also get permission from the journal to reprint or adapt the figure if you plan to present it visually in your report/papers. Go to the journal or the publisher (depending on which figure you want) and find the permissions button. You should be able to reproduce it for free. you might also find the KT in Nursing book interesting and it is also based on the KTA cycle (see the picture in the signature below). All the best with your project. ian

Ian D. Graham, PhD FCAHS FNYAM FRSC

<p>Professeur éminent Distinguished University Professor</p> <p>École d'épidémiologie et santé publique</p> <p>School of Epidemiology and Public Health</p> <p>School of Nursing Ecole des sciences infirmières (cross-appointed)</p> <p>Université d'Ottawa University of Ottawa</p> <p>600 Peter Morand Crescent,</p> <p>Ottawa, ON Canada</p> <p>K1G 5Z3</p>	<p>Senior Scientist</p> <p>Centre for Practice-Changing Research</p> <p>The Ottawa Hospital Research Institute</p> <p>501 Smyth Road, Box 241</p> <p>Ottawa, Ontario K1H 8L6</p> <p>Tel (613) 737-8899 x73851</p> <p>Fax (613) 739-6938</p> <p>email: igraham@ohri.ca</p> <p>Website: https://ktrn.ohri.ca</p> <p>Twitter: @IanDGraham1</p> <p>ORCID: http://orcid.org/0000-0002-3669-1216</p>	<p>Program Leader (PI): ID. Graham. Moving knowledge into action for more effective practice, programs and policy. A research program focusing on integrated knowledge translation. Canadian Institutes of Health Research, Foundation Grant Scheme, Inaugural competition, FDN #143237</p> <p>https://ktrn.ohri.ca</p>
---	---	--

Honorary Professor, School of Nursing and Midwifery, Deakin University, Melbourne, Australia

The University of Ottawa and Ottawa Hospital Research Institute are situated on the unceded territory of the Algonquin Nation. We honor the Elders and Knowledge Keepers, both past and present, and hope to learn and respect the history and culture of the communities that have come before and presently reside here. We acknowledge the harms and mistakes of the past and present, and dedicate ourselves to move forward in partnership with First Nations, Inuit and Métis communities in the spirit of reconciliation and collaboration.

Released 2022


<https://www.aterstroke.ca/resource/srmp/>

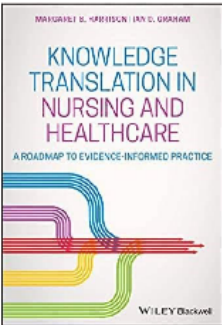
Published 2021


www.wiley.com/buy/9780813811857

Released 2021

<https://ktrn.ohri.ca/resource/skt-resource/>








Appendix D

Permission to reproduce KTA Model figure



UNIVERSITY
of HAWAII
SYSTEM

Megan Sedig <msedig@hawaii.edu>

KTA Model Figure Permission

2 messages

Megan Sedig <msedig@hawaii.edu>
To: bmj.permissions@bmj.com

To Whom It May Concern,

My name is Megan Sedig. I am a doctoral student in the doctorate of nursing practice program at University of Hawai'i at Hilo.

I am hoping to gain your permission to use your Knowledge-to-Action framework figure in my Practice Improvement Project (PIP) where I am hoping to improve the admission process from the emergency room to the inpatient behavioral health unit.

If you would like further information or have any questions, please let me know.

Thank you,
Megan Sedig, RN, MSN

Wed, Sep 14, 2022 at 5:35 PM

editorial.thebmj <editorial.thebmj+canned.response@bmj.com>
To: msedig@hawaii.edu

Thank you for your email to bmj.permissions@bmj.com.
If you are an author and wish to use your own article in a thesis please note that this is permitted by your author licence and you do not require permission. Please see your author rights here - <https://www.bmj.com/company/products-services/rights-and-licensing/author-self-archiving-and-permissions/>.

Students wishing to reuse figures and tables in their theses/dissertations may also do so without permission; or if your institution requires proof you can acquire a free licence through RightsLink as below

Most permission requests can be dealt with by our online automated permissions system, Rightslink. This can give quotes for licences and allows you to purchase/acquire them quickly online. To do this, go to the article you require on the BMJ website and select "Request Permissions" to the right hand side of the article text (for The BMJ), or in the Footnotes (for BMJ specialist journals). RightsLink customer service team can be contacted by phone, chat or email (https://s100.copyright.com/help/rightslinkhelppages/Contact_Us.htm).

Please note that if your request can be put through RightsLink you will not receive a response. Requests that do require a response will be dealt with within 10 working days.

Best regards,

BMJ Permissions Team

Wed, Sep 14, 2022 at 5:36 PM

BMJ is a healthcare knowledge provider with a vision for a healthier world. We share knowledge and expertise to improve healthcare outcomes. See how we are making a difference in our latest impact report: <https://www.bmj.com/company/impact-report/> This email and any attachments are confidential. If you have received this email in error, please delete it and kindly notify us. If the email contains personal views then BMJ accepts no responsibility for these statements. The recipient should check this email and attachments for viruses because the BMJ accepts no liability for any damage caused by viruses. Emails sent or received by BMJ may be monitored

Appendix E**Letter of Support From Project Hospital**

July 7, 2022

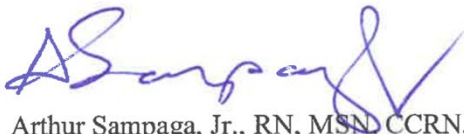
To Whom It May Concern:

Megan Sedig, RN, MSN, DNP candidate at UH Hilo has described her proposed research to me, titled, "Standardizing Medical Clearance of Behavioral Health Patients: Implementation and Evaluation of Adapted SSVMS SMART Form." The purpose of this project is to standardize the medical clearance process by utilizing the SSVMS SMART form in the emergency department to streamline behavioral health unit (BHU) admission for patients and improve patient safety by ensuring patients do not need further medical intervention prior to admission to the BHU. The goals are to standardize this process, improve communication between the two departments, and reduce the number of ancillary tests thus improving the workflow of the emergency department.

As Chief Nursing Officer of Hilo Medical Center (HMC), I approve of this research to occur with our employees and administrative records. Due to the nature of the project being a quality improvement project, the UH Hilo IRB approval will be acceptable for this project at HMC.

Please contact me if any questions or concerns.

Thank you,



Arthur Sampaga, Jr., RN, MSN, CCRN, CHEP, CNML
CNO Hilo Medical Center
Email: ASampaga@hhsc.org

Appendix F CITI Training



Completion Date 28-Dec-2020
Expiration Date 27-Dec-2024
Record ID 38517397

This is to certify that:

Megan Sedig

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

CITI Conflicts of Interest
(Curriculum Group)
Conflicts of Interest
(Course Learner Group)
1 - Stage 1
(Stage)

Under requirements set by:

University of Hawaii



Verify at www.citiprogram.org/verify/?w33005731-284c-46a5-a46a-40295bd232d6-38517397



Completion Date 10 Feb 2022
Expiration Date 09-Feb-2025
Record ID 38517398

This is to certify that:

Megan Sedig

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Information Privacy & Security (IPS)
(Curriculum Group)
Non-Exempt Biomedical Researchers and Key Personnel IPS
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Hawaii



Verify at www.citiprogram.org/verify/?wfe1f22bf-0b2b-43f6-89b0-69a3178fad47-38517398



Completion Date 10-Feb-2022
Expiration Date 09-Feb-2025
Record ID 38517401

This is to certify that:

Megan Sedig

Has completed the following CITI Program course:

Not valid for renewal of certification through CVT.

Human Subjects Research (HSR)
(Curriculum Group)
Non-Exempt Biomedical Researchers and Key Personnel
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Hawaii



Verify at www.citiprogram.org/verify/?wc177db9d-c39f-1772-958c-62b3cccd71a3-38517401



Completion Date 10-Feb-2022
Expiration Date 09-Feb-2025
Record ID 38517403

This is to certify that:

Megan Sedig

Has completed the following CITI Program course:

Not valid for renewal of certification through CVT.

Human Subjects Research (HSR)
(Curriculum Group)
Social & Behavioral IRB Members
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Hawaii



Verify at www.citiprogram.org/verify/?w340145fd-ee40-41b5-b4ea-b933e152eb36-38517403

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS***

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Megan Sedig (ID: 9483363)
- **Institution Affiliation:** University of Hawaii (ID: 1688)
- **Institution Email:** m.sedig@hawaii.edu

- **Curriculum Group:** Biomedical and Biological Responsible Conduct of Research
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - Basic Course
- **Description:** This course is for investigators, staff and students with an interest or focus in **Biomedical Research**. This course contains text, embedded case studies AND quizzes.

- **Record ID:** 38517396
- **Completion Date:** 28-Dec-2020
- **Expiration Date:** 27-Dec-2024
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Plagiarism (RCR-Basic) (ID: 15156)	12-Dec-2020	5/5 (100%)
Authorship (RCR-Basic) (ID: 16597)	12-Dec-2020	5/5 (100%)
Collaborative Research (RCR-Basic) (ID: 16598)	12-Dec-2020	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	16-Dec-2020	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	16-Dec-2020	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	16-Dec-2020	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	16-Dec-2020	5/5 (100%)
Research Misconduct (RCR-Basic) (ID: 16604)	28-Dec-2020	5/5 (100%)
Introduction to RCR (RCR-Basic) (ID: 17009)	28-Dec-2020	3/3 (100%)
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	28-Dec-2020	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	28-Dec-2020	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/7k305ec6b5-d60c-466f-99a5-3c06a83053b0-38517396

Collaborative Institutional Training Initiative (CITI Program)
 Email: support@citiprogram.org
 Phone: 888-529-5929
 Web: <https://www.citiprogram.org>



**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT****

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes or optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Megan Sedig (ID: 9483363)
- **Institution Affiliation:** University of Hawaii (ID: 1688)
- **Institution Email:** msedig@hawaii.edu
- **Institution Unit:** Nursing
- **Phone:** 3502010456

- **Curriculum Group:** Human Subjects Research (HSR)
- **Course Learner Group:** Non-Exempt Biomedical Researchers and Key Personnel
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 38517401
- **Report Date:** 10-Feb-2022
- **Current Score**:** 94

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	10-Feb-2022	5/5 (100%)
Students in Research (ID: 1321)	09-Feb-2022	4/5 (80%)
Informed Consent (ID: 3)	10-Feb-2022	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	10-Feb-2022	4/4 (100%)
Belmont Report and Its Principles (ID: 1127)	09-Feb-2022	3/3 (100%)
Records-Based Research (ID: 5)	10-Feb-2022	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	10-Feb-2022	4/5 (80%)
FDA-Regulated Research (ID: 12)	10-Feb-2022	5/5 (100%)
Research and HIPAA Privacy Protections (ID: 14)	10-Feb-2022	5/5 (100%)
History and Ethics of Human Subjects Research (ID: 493)	10-Feb-2022	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	10-Feb-2022	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	10-Feb-2022	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 15880)	09-Feb-2022	4/5 (80%)
Conflicts of Interest in Human Subjects Research (ID: 17464)	10-Feb-2022	5/5 (100%)
Cultural Competence in Research (ID: 15169)	09-Feb-2022	4/5 (80%)

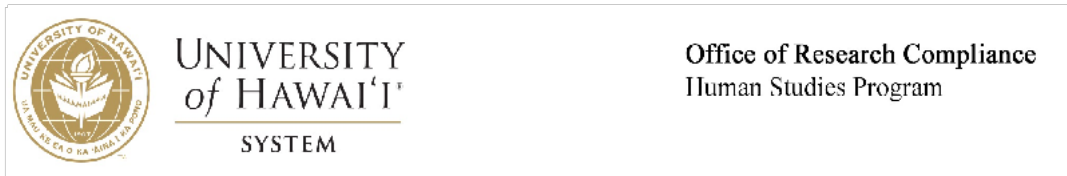
For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify?k84d90988-04f3-479b-9334-11781a7ad840-38517401

Collaborative Institutional Training Initiative (CITI Program)
 Email: support@citiprogram.org
 Phone: 888-529-5429
 Web: <https://www.citiprogram.org>

Appendix G

UH IRB Approval



DATE: October 14, 2022

TO: Hensley, Patricia, DNP, BSN,
University of Hawaii at Hilo, College of
Natural and Health Sciences
D'Haem, Rebecca, University of Hawaii
at Hilo, School of Nursing, Sedig,
Megan

FROM: Rivera, Victoria, Dir, Ofc of Rsch
Compliance, Social&Behav Exempt

PROTOCOL TITLE: Standardizing Medical Clearance of
Behavioral Health Patients:
Implementation and Evaluation of
Adapted SMART Form at a Rural
Community Hospital Emergency
Department

FUNDING SOURCE: None

PROTOCOL NUMBER: 2022-00760

APPROVAL DATE: October 21, 2022

NOT HUMAN SUBJECTS RESEARCH DETERMINATION

The above referenced study, and your participation as a principal investigator, was reviewed and determined to be Not Human Subjects Research (NHSR). As such, your activity falls outside the parameters of IRB review. You may conduct your study, without additional obligation to the IRB, as described in your application.

The NHSR Determination is based upon the following Federally provided definitions:

"Research" is defined by these regulations as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."

The regulations define a **"Human Subject"** as "a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention or interaction with the individual, or identifiable private information."

All Human Subjects Research must be submitted to the IRB. If your study changes in such a way that it becomes Human Subjects Research please contact the Research Compliance office immediately for the appropriate course of action.


Please contact this office if you have any questions or require assistance.

2425 Campus Road, Sinclair 10
 Honolulu, HI 96822
 Telephone: (808) 956-5007 • Fax: (808) 956-9150
 An Equal Opportunity/Affirmative Action Institution



Appendix H

SMART Form Permission



**UNIVERSITY
of HAWAII**
SYSTEM

Megan Sedig <mседig@hawaii.edu>

SMART Form Permission

11 messages

Megan Sedig <mседig@hawaii.edu>
To: awetzel@ssvms.org

Good morning,

My name is Megan Sedig. I am a doctoral student in the doctorate of nursing practice program at University of Hawaii at Hilo.

I am hoping to gain your permission to utilize an adapted version of the SSVMS SMART Form in my Practice Improvement Project (PIP) where I am hoping to improve the admission process from the emergency room to the inpatient behavioral health unit at Hilo Medical Center.

Please let me know if further information regarding this project is needed. Feel free to contact me with any questions/concerns.

Thank you,
Megan Sedig, RN, MSN

Sun, Sep 4, 2022 at 8:02 AM

Aileen Wetzel <AWetzel@ssvms.org>
To: Megan Sedig <mседig@hawaii.edu>
Cc: "Thomas, Seth" <Seth.Thomas@vituity.com>

Hello Megan,

Thank you for reaching out. Can you provide a bit more information about "adapted version?" You are welcome to use the SMART Medical Clearance form, we just ask that the Sierra Sacramento Valley Medical Society (SSVMS) be acknowledged.

I invite you to keep us posted on your project and share what you have developed/published. This information is helpful to those who are considering adapting the form, which has been implemented in dozens of medical communities both in the US and internationally.

Please don't hesitate to reach out if you have any questions.


Kind Regards,

Aileen

Tue, Sep 6, 2022 at 7:12 AM

Appendix I

Project Hospital BHU Admission Policy

Current Status: <i>Active</i>		PolicyStat ID: 11199791	
	Origination:	06/2003	
	Effective:	03/2022	
	Last Approved:	03/2022	
	Last Revised:	03/2022	
	Next Review:	03/2025	
	Owner:	<i>Jessica Stevens: RN</i>	
	Area:	<i>Behavioral Health Unit</i>	
	References:	<i>TJCREQ</i>	
Applicability:	<i>Hilo Medical Center</i>		
Behavioral Health Unit (BHU) Admission/Transfer and Discharge Process			
I. PURPOSE:			
To establish criteria and a process for BHU Admission/Transfer and Discharge from Hale Ho'ola in accordance with Hawaii Revised Statutes (HRS) Chapter 334 and regulatory requirements.			
II. POLICY:			
Patients admitted to Hale Ho'ola (Behavioral Health Unit) are referred primarily through the Emergency Department (ED), but may be directly referred for admission from other acute care units within the facility. The acute care units may transfer patients to BHU who meet admission criteria and/or develop an exacerbation of mental health symptoms after medical clearance is established to rule out other potential cause(s) of mental health symptoms or to document medical stability of any chronic medical condition(s). BHU patients are admitted on a voluntary/involuntary status and must also meet discharge criteria per Hawaii Revised Statute (HRS) CHAPTER 334.			
III. PROCEDURE:			
A. Criteria for admission/transfer to the Behavioral Health Unit (BHU):			
1. Adults age 18yrs or older.			
2. Medically cleared by ED Provider.			
3. Patient is independent and able to provide self-care or activities of daily living (ADL) and the diagnosis of severe mental illness does not prevent the ability of the patient to care for self.			
4. Dangerous to Others: Likely to do imminent and substantial physical injury or emotional injury to another, as evidenced by a recent overt act, attempt or threat.			
5. Dangerous to Self: Likely to do imminent substantial physical injury to one's self, as evidenced by a recent overt act, attempt or threat to injure one's self physically or by neglect or refusal to take necessary care of one's own physical health and safety together with incompetence to determine whether treatment for mental illness or substance abuse is appropriate.			
6. Patient will meet the severity of illness criteria. Which includes one or more clinical findings of recent onset or significant change:			

- a. Psychotic symptoms including auditory hallucinations, active command hallucinations, delusions, and/or disorganized thinking or behaviors.
- b. Self-mutilation or impulses to engage in self-mutilation.
- c. Depression, anxiety, or hypomania accompanied by significant social or occupational dysfunction.
- d. Conditions failing to respond to less restrictive levels of outpatient care including non-adherence to medication(s).
- e. Destructive behaviors towards property.
- f. Chronic patterns of prescribed or illegal substance abuse and/or alcohol intoxication with psychosocial deterioration expressed by:
 1. Continued excessive alcohol and/or substance abuse resulting in loss of behavioral control and associated dangerous and/or life-threatening behavior.
 2. Severe deterioration in social, family, occupational, and/or educational functioning (e.g., loss of job, physical violence at home, family member is enabler).
 3. Substance induced paranoia, insomnia, depression, and anxiety.
7. Patient admission status must be voluntary (MH5) OR involuntary (MH4):
 - a. Voluntary Admission (MH5): A patient voluntarily consents to be admitted to a closed, locked psychiatric inpatient unit for treatment and stabilization of an acute psychiatric diagnosis(es).
 - b. Involuntary Admission (MH4): If the physician, advance practice registered nurse (APRN), or psychologist who performs an emergency examination has reason to believe that the patient is mentally ill or suffering from substance abuse; imminently dangerous to self or others; and in need of care or treatment, or both; the physician, APRN, or psychologist may direct that the patient be hospitalized on an emergency basis not to exceed 48 hours from the date and time of the MH4.

B. Medical Clearance Criteria:

1. Vital signs within normal limits (WNL)
 - a. Oxygen Saturation: >95% on room air.
2. Blood Glucose: < 300 mg/dL.
3. Lab Values to be assessed:
 - a. CBC w/Auto Diff
 - b. Comprehensive Metabolic Panel
 - c. TSH
 - d. Urine Analysis (Urinary Tract Infection to be treated initially in the ED)
 - e. Urine Drug Screen

- f. Pregnancy Test, for females between the ages of 18 - 50 years.
- g. Obtain a screening drug level for patients taking the following medications:
 - 1. Phenytoin
 - 2. Valproic acid
 - 3. Lithium
 - 4. Digoxin
 - 5. Warfarin (INR)

4. Patient is post episode of any seizures, hydration is appropriate, and gross tremors are absent, and no identifiable medical condition contributing to psychiatric symptoms.

5. A patient suspected of consuming alcohol will require an estimated Blood Alcohol Concentration (BAC) of 200mg/dL and a Clinical Institute Withdrawal Assessment-Alcohol Scale Revised (CIW-AR) score <8 and documented in the EMR prior to transfer to BHU.

7. If the ED physician in consultation with the hospitalist decide additional medical intervention is necessary, the patient is admitted to the appropriate medical unit and until medically stable for transfer to BHU or discharge. If the patient is medically stable in the ED, transfer occurs to BHU.

C. Exclusion Criteria for BHU Admission:

1. Medical co-morbidities that requires a medical/surgical setting because they are unable to be safely managed in the inpatient psychiatric setting (e.g., no bed rails, low toilets, hand rail restrictions, low flat stationary bed, shared restrooms/showers).
2. Awaiting admission and/or transfer to a nursing home or community care placement.
3. Homeless
4. A primary diagnosis of Alzheimer, Dementia, substance use/abuse, and/or ETOH intoxication.
5. The primary problem is not psychiatric and the admission is being used as an alternative to for respite or housing.
6. Requires oxygen.
7. Patient with a foley catheter.
8. Patients with any highly transmissible infectious disease.
9. Concurrent admissions of relatives and/or significant others of any current behavioral health patients are not permitted. The last patient eligible for admission is transferred to a community psychiatric inpatient unit and may be transferred back to BHU once the relative/significant other is discharged.
10. Therapeutic or service animals are not allowed on the BHU and other arrangements for their care must be made.
11. A fugitive felon is defined as a "Patient fleeing from the law to avoid custody or confinement after conviction, prosecution, or violation of probation/parole for a felony offense.

D. Admission/Transfer process:

1. After medical clearance is determined by the ED provider a Behavioral Health(BH) consult request is entered in the patient's EMR.
2. Tele Psych Services/BH provider is contacted and will assess the patient for the necessity of inpatient psychiatric treatment.
3. If the Tele Psych Services/BH provider recommends admission, the ED staff/Acute Unit will initiate the documents for a (MH5) voluntary admission or MH4 involuntary admission. The following documents must be completed:
 - a. Required MH5 Forms must be completed and signed prior to transfer:
 - 1) MH5 - Application for Voluntary Admission of an Adult or a Minor Under Age Fifteen;
 - 2) Voluntary Hospitalization: Notice of Right to Release and Procedure. To be read to the patient in the ED.
 - b. Required MH4 Forms to be completed and signed prior to transfer to BHU:
 - 1) Emergency Examination/Hospitalization Certificate of Physician/Psychologist for Admission/Transportation to a Psychiatric Facility Pursuant to HRS CHAPTER 334-59, AS AMENDED. Page 1 and 2, Questions 1-5 must be completed and signed by the transferring ED Physician.
 - c. Required MH4 Forms to be completed and signed during BHU Admission Process:
 - 1) BHU staff will complete page 3, titled "To Be Completed By Psychiatric Facility. The 48hr emergency hospitalization will begin on the date and time the patient physically enters the BHU.
 - 2) Non-consensual Admission: Statement of rights Emergency Examination and/or Hospitalization Pursuant to HRS CHAPTER 334, AS AMENDED will be read to the patient during the BHU admission intake.
 - 3) The patient shall have the right immediately upon admission to telephone the patient's guardian, family member, adult friend, and attorney. Upon request the patient shall be allowed to confer with their attorney in private.
3. ED/Acute Unit staff will enter a bed request and notify House Supervisor of admission.
4. The ED/Acute Unit Nurse will provide a verbal hand off report to the BHU Charge Nurse/designee who will enter an SBAR note into the patient's EMR documenting the hand off report.
5. The patient must be in a gown and non slip socks and all personal belongings (e.g., cell phone, electronic tablets, computer, jewelry, belt, clothing/shoes with strings) must be removed and secured prior to transport to BHU. All known contraband items will be removed.
6. The patient will be escorted to BHU by security guard(s) and ED/Acute Unit staff or BHU staff.
7. The admitting BH provider will enter the following admission orders into the patient's EMR:
 - a. Admit/OBS/Transfer

- b. Activity
- c. Behavioral Status
- d. Care
- e. Code Status (resuscitation status)
- f. Consults (if required)
- g. Dietary
- h. Medications
- i. Nurse Communication
- j. Patient Education
- k. Precaution(s)
- l. Standard of Care

8. The BHU provider complete a history and physical within 24hrs of admission.

9. The BHU RN will read time and date page 3 of the MH4 documentation and read to the patient.

10. BHU Registered Nurse completes the following admission assessment documentation within 24-48hrs of admission:

- a. Admission SBAR Note
- b. Admission Allergy Review
- c. Admission Height/Weight/V/S
- d. Home Medication Inventory
- e. Admission General Info/Unit Orientation-BH
- f. Past Medical History
- g. Admission Physical Assessment-BH
- h. Past Medical History (NEW)
- i. Admission Risk Screening
- j. Vaccine Documentation Tool
- k. Problem Added to the Plan of Care (completed within 4 hours of admission)
- l. Advance Directives
- m. Educational Assess/Document
- n. Preferred Pharmacy Confirmation

10. Licensed Clinical Social Worker (LCSW) completes the following:

- a. Social Assessment (within 24-72hrs of admission).

- b. DAST/AUDIT/CRAFFT (within 24-72hrs of admission).
- b. In the absence of an LCSW a Hospital Social Worker/Case will assist with the required documentation.

E. BHU Discharge:

1. Clinical Criteria for Discharge:
 - a. Patient is not a danger to self or others, and is able to contract for safety.
 - b. Patient is able to provide for, or assist in the provision of their personal needs such as food, shelter, and clothing.
 - c. Patient/Family/Significant Other verbalizes knowledge/understanding of illness, medications, potential limitations related to illness, aftercare treatment, and available resources.
 - d. Patient has been referred to appropriate community follow-up care to ensure his/her compliance with medication regimen, and to monitor patient's safety in the community.
 - e. Treatment goals established upon admission have been met/resolved.
2. Administrative Criteria for Discharge:
 - a. Patient breaks BHU facility rules not due to an acute mental disorder or lack of understanding and does not meet criteria for continued inpatient hospitalization.
 - b. The patient admission is for the purpose of fleeing from the law to avoid custody or confinement after conviction, prosecution, or violation of probation/parole for a felony offense.
3. Discharge of a Voluntary Patient (MH5):
 - a. A voluntary patient and his/her guardian or representative shall be notified in writing of his/her right and how to apply for discharge at the time of his/her admission and each six months thereafter.
 - b. A voluntary patient or his/her guardian, representative or attorney may request discharge in writing at any time following admission to the facility. A letter of discharge must include the following:
 1. Reason for discharge
 2. Documented statement that the patient is not a threat to self or others.
 3. Documented statement of adequate shelter or housing (homeless shelter, etc.)
 - c. If the patient was admitted on his/her own application and a person other than the patient makes the request for discharge, the discharge may be conditioned upon the agreement of the patient.
 - d. A voluntary patient or his/her guardian, representative or attorney may submit a written request for discharge to the administrator of the psychiatric facility at any time following admission to the facility.
 - e. The request for discharge shall be approved by the attending Psychiatrist within 24 hours

following receipt of the written request unless there is a reason to believe that discharge would be dangerous to the patient or to others, in which case, the request for discharge will be denied.

f. If the attending Psychiatrist does not approve the request, proceedings for involuntary hospitalization shall then be initiated within 24hrs of the receipt of the written request for discharge.

g. If the twenty-four-hour period expires on a Saturday, Sunday, or Holiday, the time for initiation is extended to noon of the next court day.

h. Upon initiation of the involuntary hospitalization proceedings, the facility is authorized to detain the patient until a hearing is held but not to exceed 10 days from the date of initiation unless otherwise ordered by the court.

i. Notice of right to release. At the time of the patient's admission and each six months thereafter, a voluntary patient and the patient's guardian or representatives shall be notified in writing of the patient's right and how to apply for discharge.

4. Discharge of a Patient from Emergency Hospitalization (MH4):

a. Release from emergency hospitalization. If at any time during the period of emergency hospitalization the responsible psychiatrist concludes that the patient no longer meets the criteria for emergency hospitalization the psychiatrist shall discharge the patient. If the patient is under criminal charges, the patient shall be returned to the custody of a law enforcement officer.

b. The patient must be released within forty-eight hours of the patient's MH-4 admission, unless the patient voluntarily agrees to further hospitalization, or a proceeding for court-ordered evaluation or hospitalization (MH-6), or both, is initiated in accordance with HRS section 334-60.3. If that time expires on a Saturday, Sunday, or holiday, the time for initiation is extended to the close of the next court day. Upon initiation of the proceedings the facility shall be authorized to detain the patient until further order of the court.

5. Discharge of an Involuntary Patient (MH6):

a. If the attending physician contemplates discharge of an involuntary patient because of expiration of the court order for commitment or because the patient is no longer a proper subject for commitment, as determined by the criteria for involuntary hospitalization per HRS section 334-60.2, the attending psychiatrist shall provide notice of intent to discharge, or if the patient voluntarily agrees to further hospitalization, the psychiatrist shall provide notice of the patient's admission to voluntary inpatient treatment.

b. The notice and a certificate of service shall be filed with the family court and served on those persons whom the order of commitment specifies as entitled to receive notice, by mail at the person's last known address. Notice shall also be sent to the prosecuting attorney of the county from which the person was originally committed, by facsimile or electronically, for the sole purpose of victim notification;

c. Any person specified as entitled to receive notice may waive this right in writing with the psychiatric facility;

d. If no objection is filed within five calendar days of mailing the notice, the administrator or attending physician of the psychiatric facility shall discharge the patient or accept the patient for voluntary inpatient treatment;

- e. If any person specified as entitled to receive notice files a written objection, with a certificate of service, to the discharge or the patient's admission to voluntary inpatient treatment on the grounds that the patient is a proper subject for commitment, the family court shall conduct a hearing as soon as possible, prior to the termination of the current commitment order, to determine if the patient still meets the criteria for involuntary hospitalization in section 334.60.2;
- f. The person filing the objection shall also notify the psychiatric facility by telephone on the date of the objection is filed;
- g. If the family court finds that the patient does not meet the criteria for involuntary hospitalization in section 334-60.2, the court shall issue an order of discharge from the commitment; and
- h. If the family court finds that the patient does meet the criteria for involuntary hospitalization in section 334-60.2, the court shall issue an order of discharge from the commitment; and
- i. If the family court finds that the patient does not meet the criteria for involuntary hospitalization in section 334-60.2, the court shall issue an order denying discharge from the commitment.
- j. The attending psychiatrist will submit the intent to discharge letter to the attorney general's office. This letter is to contain that the patient is clinically ready for discharge and that the family has been notified;
- k. The attorney general's office will file this with the court;
- l. The attorney general's office will notify the parties required to receive notice. If no objection is received, the discharge will proceed as planned;
- m. If a written objection is filed with the courts within five days of recent the court will establish a hearing within ten days.
- n. The individual filing the objection will also notify the psychiatric facility by telephone on the date they filed the objection.
- o. If the family court finds that the patient does not meet the criteria for involuntary hospitalization in section 334-60.2, the court shall issue an order of discharge from the commitment and;
- p. If the family court finds that the patient does meet the criteria for involuntary hospitalization in section 334.60.2, the court shall issue an order denying discharge from the commitment.

6. Discharge Documentation:

- a. If a patient agrees and is eligible for temporary case management services a crisis mobile outreach (CMO) worker will meet with the patient at discharge to arrange services and provide transportation home or to temporary housing.
- b. If the patient doesn't have permanent housing, and there are no beds are available at the Licensed Crisis Residential Shelter (LCRS), the patient will be provided with information on homeless shelters within the community.
- c. A follow-up appointment is scheduled with the patient's BH provider within 7 days of discharge. If the patient cannot be seen by his/her provider within 7 days of discharge or if the patient doesn't have a provider, then a list of BH providers within the community with contact information is provided at discharge.
- d. Discharge medication(s) is/are prescribed and reviewed.

- e. Designated Caregiver at discharge documented.
- f. Belongings (personal items and home medications) obtained, checked and signed as accurate.
- g. Arrangements for transportation are arranged, as necessary.
- h. Discharge Safety Plan including the Crisis Line telephone number is completed and a signed copy is given to the patient.

IV. References:

Hawaii Revised Statutes (HRS) 334.59, 334.60

The Joint Commission. (2022). National Patient Safety Goals effective January 2022 for the Hospital Program. https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/2022/npsg_chapter_hap_jan2022.pdf

Supersedes:

- Policy: Assessment/Admission of Patients to Behavioral Health Unit**
- Policy: Nursing: Transfer (In-House) to Behavioral Health Unit**
- Policy: Letter of Discharge for MH5b(voluntary Hospitalization Patients)**
- Policy: Discharge of Involuntary Patients**
- Policy: Discharge Criteria for Behavioral Health (Hale Ho'ola)**
- Policy: Criteria for Behavioral Health Admission**

Attachments

- [MH4](#)
- [MH4a](#)
- [MH5](#)
- [MH5b](#)

Approval Signatures

Approver	Date
Arthur Sampaga: Chief Nursing Officer	03/2022
Yvette Perez: RN Director of Nursing	03/2022
Joyce Murata: RN Director of Nursing	03/2022
Antoinette Higa: RN TA Nurse Manager [RH]	03/2022
Jessica Stevens: RN	03/2022

Applicability
Hilo Medical Center
<h1>COPY</h1>

Appendix J

Spreadsheets for Data Collection

Table J1*Spreadsheet Pre-SMART Form*

Code	Age	Gender	Race	Insurance	Chief Complaint	# Blood Draw	# Tests	LOS

Table J2*Spreadsheet Post-SMART Form*

Code	Age	Gender	Race	Insurance	Chief Complaint	# Blood Draw	# Tests	LOS	SMART Form?

Table J3*Codebook*

Input	Type	Format	Missing	Recodes
Code	Nominal	A, B,...AA, BB,...AAA etc.		
Date	Continuous	MM/DD/YEAR		
Chief complaint	Nominal	Mental/Behavioral Health options (look for themes)		
Utilized SMART Form (post only)	Dichotomous	1 = Yes 2 = No		

Age	Nominal	18-99 years		
Gender	Dichotomous	M = Male F = Female X = transgender/nonbinary/etc.		
Race/Ethnicity	Nominal	A = Asian (Chinese, Japanese, Korean) AA = African American AI/AN = American Indigenous/Alaska Native F = Filipino H = Hispanic M = Micronesia NH = Native Hawaiian O = Other PI = Pacific Islander S = Samoan W = White/ Caucasian (non-Hispanic)		
Insurance	Dichotomous	M = Medicare MQ = Medicaid/Quest P = Private insurance U = Uninsured G= Government (Tricare/VA)		
LOS	Continuous	0 to unlimited		
# Tests	Continuous	0 to unlimited		
# Blood Draws	Continuous	0 to unlimited		

Appendix K
HMC Pre-Implementation Staff Survey (Pre-survey)

1. What is your role at HMC?

ED provider (physician, APRN, or physician's assistant)

ED staff (RN, tech)

BHU provider (physician, APRN, or physician's assistant)

BHU staff (RN, CNA)

Administrator / Manager

Other

2. How long have you been working at HMC in ED and/or BHU?

Less than 1 year

1 to 4 years

5 to 10 years

More than 10 years

3. In an average shift, how many patients with a chief complaint relating to a mental or behavioral health emergency (e.g., suicidal ideation, depressed, or behavioral issue) do you care for?

Less than 1

1 to 3

4 to 7

8 or more

4. Please select the biggest issue with BHU admissions from the ED?

_____ Communication difficulties between BHU and ED

_____ Unclear criteria for BHU admission

_____ Long ED stay/boarding

_____ Other.

If you chose other, please briefly describe: _____.

Please indicate how satisfied you are with the following:

5. The BHU admissions process and workflow from the ED
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied

6. Communication between the ED and BHU regarding patient admissions
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied

7. The length of stay of mental/behavioral health patients in the ED prior to admission to the BHU:
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied

8. Do you have anything else you would like to add or any other comments?



Appendix L**HMC SMART Form Implementation Staff Survey (Post Survey)**

1. What is your role at HMC?

ED provider (physician, APRN, or physician's assistant)

ED staff (RN, tech)

BHU provider (physician, APRN, or physician's assistant)

BHU staff (RN, CNA)

Administrator / Manager

Other

2. How long have you been working at HMC in ED and/or BHU?

Less than 1 year

1 to 4 years

5 to 10 years

More than 10 years

3. In an average shift, how many BHU patients do you care for?

Less than 1

1 to 3

4 to 7

7 or more

4. After implementation of the SMART form, please select the biggest issue with BHU admissions?

_____ Communication difficulties between BHU and ED

_____ Unclear criteria for BHU admission

_____ Long ED stay/boarding

_____ Other.

If you chose other, please briefly describe: _____.

Please indicate how satisfied you are with the following:

5. The BHU admissions process and workflow from the ED
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied
6. Communication between the ED and BHU regarding patient admissions
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied
7. The length of stay of mental/behavioral health patients in the ED prior to admission to the BHU:
 - 1-Very satisfied
 - 2-Satisfied
 - 3-Neutral
 - 4-Dissatisfied
 - 5-Very Dissatisfied
8. Do you have anything you would change or add to the SMART Form or any other comments?

Table L1*Survey Codebook*

Question	Variable	Type	Format	Missing	Recodes
1	Role	Nominal	<ul style="list-style-type: none"> · ED provider · ED staff (RN, tech) · BHU provider · BHU staff (RN, CNA) · Administrator 		
2	Length at Position	Nominal	<p>1 = less than 1 year</p> <p>2 = 1 to 4 years</p> <p>3 = 5 to 10 years</p> <p>4 = 10+ years</p>		
3	Average # of patients	Nominal	<p>1 = less than 1</p> <p>2 = 1 to 3</p> <p>3 = 4 to 7</p> <p>4 = 8+</p>		
4	Selection of Issue	Ordinal	<p>1 = Communication difficulties</p> <p>2 = Unclear criteria</p> <p>3 = Long LOS</p> <p>4 = Other</p>		

5	Satisfaction with BHU admissions/ED Workflow	Ordinal	1 = Very Dissatisfied 2 = Dissatisfied 3 = Neutral 4 = Satisfied 5 = Very Satisfied		
6	Satisfaction with Communication	Ordinal	1 = Very Dissatisfied 2 = Dissatisfied 3 = Neutral 4 = Satisfied 5 = Very Satisfied		
7	Satisfaction with ED LOS	Ordinal	1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree		
8	Open ended question	Nominal	Unlimited options (evaluate for themes)		

Appendix M

Flyer

Aloha! My name is Megan Sedig and you are invited to take part in a quality improvement (QI) project. I am a graduate student at the University of Hawai'i at Hilo in the School of Nursing. As part of the requirements for earning my graduate degree, I am doing a QI project.

What am I being asked to do?

If you participate in this project, you will be asked to fill out a survey.

Taking part in this project is your choice.

Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the project, there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights to services or employment status at the Hilo Medical Center (HMC).

Why is this project being done?

The purpose of my project is to evaluate the current admission process from the Emergency Department (ED) to the Behavioral Health Unit (BHU) for appropriate patients and then evaluate the effectiveness of utilizing an evidence-based standardized medical clearance form. I am asking you to participate because you recently used these processes as part of HMC staff in the ED or BHU.

What will happen if I decide to take part in this project?

There will be a pre- and post-project survey. Both surveys consist of 8 questions and will take about 3 minutes to complete.

What are the risks and benefits of taking part in this project?

I believe there is little risk to you for participating in this project. You may become uncomfortable answering the survey questions. If you do become stressed or uncomfortable, you may skip the question. You can also stop taking the survey or you can withdraw from the survey altogether.

There will be no direct benefit to you for participating in this survey. The results of this project may help improve the admission process between the ED and BHU.

Confidentiality and Privacy:

I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses. I will keep all study data secure and encrypted via a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review project records include the University of Hawai'i Human Studies Program.

Compensation:

There will be no compensation for completion of the survey.

Questions: If you have any questions about this study, please call or email me at 360-801-0466 or msedig@hawaii.edu. You may also contact my faculty advisor, Dr. Patricia Hensley, at 808-932-7067 or hensleyp@hawaii.edu. You may contact the UH Human Studies Program at 808.956.5007 or uhib@hawaii.edu to discuss problems, concerns and questions, obtain information, or offer input with an informed individual who is unaffiliated with the specific project. Please visit <http://go.hawaii.edu/iRd> for more information on your rights as a project participant.

To Access the Survey: Please go to the following web page: (TBD). You should find a link and instructions for completing the survey. Going to the first page of the survey implies your consent to participate in this project.

Please print or save a copy of this page for your reference.

Mahalo!

Appendix N**Email Notification**

Hilo Medical Center is partnering with University of Hawai`i at Hilo, School of Nursing for a Quality Improvement project:

Standardizing BHU Admissions using the SMART Form

Please help ensure the order set is being used in the EMR.

The purpose of this quality improvement project is to improve the workflow of the ED with BHU admissions using an adapted version of an evidence-based medical clearance form called the “SMART Form”. A University of Hawai`i at Hilo, School of Nursing doctoral student will be collaborating with HMC to evaluate the effectiveness of this form to improve and standardize the admission process to the BHU and assist with ED workflow.

****Surveys will be sent via email to provide feedback before and after implementation****

To learn more about this project or any questions/concerns, please call Megan Sedig, RN, MSN, DNP Candidate 360.801.0466 or email msedig@hawaii.edu

Appendix O

Pre-Implementation Data

Table O1

January 2022 Coded Patient Data

Age	Gender	Race	Insurance	# Blood Draw	# Tests	LOS
33	M	W	M	0	0	6.1
42	M	NH	P	1	1	5
29	F	NH	MQ	1	0	23.2
38	F	A	P	1	0	4.1
36	F	W	P	1	0	1.3
29	F	W	P	0	0	7.8
27	M	W	P	1	0	2.7
67	F	W	M	1	0	3.6
38	M	NH	M	1	1	3.1
24	F	NH	P	1	0	6.8
51	F	F	M	1	0	18.2
33	M	W	M	1	0	5.3
52	M	H	MQ	1	0	6.3
44	F	NH	MQ	1	0	3.6

34	M	NH	MQ	1	0	1.8
26	F	H	G	5	1	9.7
64	M	NH	M	2	0	9.5
42	M	H	MQ	0	0	2.3
55	F	UNK	U	1	1	3.5
53	M	W	M	1	1	4.2
74	M	F	M	1	9	8.1
20	M	NH	MQ	2	0	2.7

Appendix P

Post-Implementation Data

Table P1

January 2023 Coded Patient Data

Age	Gender	Race	Insurance	# Blood Draw	# Tests	LOS	SMART Form? 1 = YES 2 = NO
18	M	W	P	3	0	5.7	2
49	M	NH	P	3	0	5	2
35	M	H	MQ	5	1	37.7	2
55	M	W	MQ	3	0	18.7	2
22	F	W	P	4	1	64.5	2
60	F	W	MQ	3	0	48.6	2
20	M	W	P	3	0	9.9	2
42	F	H	MQ	2	0	6.9	2
53	F	W	MQ	2	0	5.1	2
35	M	W	MQ	2	0	8.7	2
51	F	W	M	3	1	5.1	2

70	F	W	M	1	1	4.6	2
48	F	NH	M	1	1	9.3	2

Appendix Q

BH Clearance Form

Preview

ADM,JOY M 30 F 08/05/1992 Allergy/Adv: Not Recorded

BH Clearance**New Onset Psych Condition?**

New onset psychiatric diagnosis?: No
 New onset hallucinations and/or delusions?: No
 New patient with behavioral health complaints?: No

Medical Conditions Requiring Screening?

Diabetes (FSBS less than 60 or greater than 250): No
 Possibility of pregnancy (age 12-50): No
 Other complaints that require screening: No

Abnormal:

Temp: greater than 38.0C (100.4F): No
 HR: less than 50 or greater than 110: No
 BP: <100 Sys or > 180/110 (2 consecutive reads 15 min apart): No
 RR: less than 8 or greater than 22: No
 O2 Sat: less 95%: No

Mental Status?

Can't answer name, mth/yr & location (minimum A/O x 3): No
 If clinically intoxicated, HII score 4 or more?: No
 BH Trace Curve Result: Pass
 Physical Exam (unclothed)?: Yes

Risky presentation?

Age less than 12yo or greater than 55yo: No
 Possibility of ingestion (screen all suicide patients): No
 Eating disorders: No
 Potential for alcohol withdrawal (daily use = to or > than 2 weeks): No
 Ill-appearing, significant injury, prolonged struggle or found down: No

Therapeutic Levels Needed?

Phenytoin: No
 Valproic acid: No
 Lithium: No
 Digoxin: No
 Warfarin (INR): No

Discharge Plan**Discharge Plan**

Referrals:
 PHYSICIAN,NO PCP [Primary Care Provider] -

Appendix R

PowerPoint Presentation to BHU & ED Departments

Standardizing Medical Clearance of Behavioral Health Patients: Implementation and Evaluation of Adapted SMART Form at a Rural Community Hospital Emergency Department

Megan Barter Sedig, BS, MSN, RN, DNP Candidate
School of Nursing, University of Hawaii at Hilo

1

Introduction

- 40.8% increase in annual mental & behavioral health-related emergency department (ED) visits from 2009 & 2015¹
- 97% reduction in US inpatient psychiatric bed from 1955 to 2016²
- Average 6.8 hrs patients boarding in ED, up to 34 hrs³
- 11.2% of all ED hrs utilized by mental health-related encounters & median length of stay (LOS) 3 hrs longer than non-mental health-related encounters¹
- Resulting in ED crowding & limiting ED resources for incoming emergencies¹

2

Current Issues

- Patients that present to the ED experiencing a mental/behavioral health emergency must be evaluated for any acute medical or underlying condition, 'medical clearance', prior to transfer to inpatient psychiatric unit⁴
- Utilizing a standard protocol for 'medical clearance' can reduce hospital resources & allow ED to operate at capacity by improving workflow⁵
- Timely transfer of these patients to the appropriate environment improves patient outcomes⁶

3

Purpose

This is a **QI project** to standardize the medical clearance of patients with mental/behavioral health chief complaints by using the evidence-based SMART Form at the project hospital's ED.

- UH Hilo IRB #2022-00760
 - Reviewed 10/14/2022: Not Human Subjects Research (NHSR)
- HMC Dr. Kathleen Katt & Arthur Sampaga, Jr.

4

Project Goals

- Decrease ED LOS
- Decrease hospital resource use (e.g., # lab draws & ancillary tests—CT, MRI, ultrasound, X-ray)
- Increase provider & staff satisfaction
 - Admission: ED → Behavioral Health Unit (BHU)

5

Background

- Each year 1 in 5 US adults experiences mental illness⁴
- Hawaii in 2019:
 - 187,000 adults with a mental health condition^{4,5}
 - 41,000 adults with serious mental illness^{4,5}
 - 36,000 adults did not receive needed mental health care⁶
 - 17.6% of the population on Medicaid⁷
 - 4.1% of the population are uninsured⁷

6

Background (cont.)

- Provider Shortage in Hawaii in 2021¹¹
 - 40% physician shortage
 - 11% primary care physician shortage
- Hawaii County: 46% mental health provider shortage¹¹
- Shortages of PCPs & mental health providers → ED encounters for preventative care⁶
- Longer ED stays (>24 hours) for Medicaid psychiatric patients⁵

7

SSVMS SMART Form

- Sierra Sacramento Valley Medical Society (SSVMS) created a new evidence-based protocol → SMART Form for medical clearance
 - Goal: “ensure all ED providers are performing the same evaluation that is thoughtful, patient specific, & evidence-based”¹²
- **Success:** average ED LOS 20.85 hrs → 17.75 hrs (↓14.9%)¹³
- Adapted by other facilities → Wisconsin SMART Form

8

SSVMS SMART Form¹⁴

SMART Medical Clearance Form

	No*	Yes	Time Resolved
S uspect New Onset Psychiatric Condition?	1		
M edical Conditions that Require Screening? Diabetes (FBS less than 60 or greater than 250) Possibility of pregnancy (age 12-50) Other complaints that require screening			
A bsnormal: Vital Signs? Temp: greater than 38.0°C (100.4°F) HR: less than 50 or greater than 110 BP: less than 100 systolic or greater than 180/110 (2 consecutive readings 15 min apart) RR: less than 8 or greater than 22 O ₂ Sat: less than 95% on room air Mental Status? Cannot answer name, month/year and location (minimum A/D x 3) If clinically indicated, HI score 4 or more (next page) Physical Exam (next page)			
R isky Presentation? Age less than 12 or greater than 55 Possibility of ingestion (screen all suicidal patients) Eating disorders Potential for alcohol withdrawal (daily use equal to or greater than 2 weeks) If appearing, significant injury, prolonged struggle or "found down"	4		
T herapeutic Levels Needed? Phenytoin Valproic acid Lithium Digoxin Warfarin (INR)	5		

* If ALL the SMART categories are checked "NO" then the patient is considered medically cleared and no testing is indicated. If ANY category is checked "YES" then appropriate testing and/or documentation of rationale must be reflected in the medical record and time resolved must be documented above.

Date: _____ Time: _____ Completed by: _____ MDDO

9

SSVMS SMART Form¹⁴

H-Impairment Index (HI) Score

Time	0	1	2	3	4
Gross Motor Function					
Unable to cooperate; cannot sit up	4	4	4	4	4
Can sit up, but unsteady	3	3	3	3	3
Can sit up steadily	2	2	2	2	2
Can stand and walk, but unsteady	1	1	1	1	1
Can stand and walk steadily	0	0	0	0	0
Mentation and Speech					
Unable to cooperate; unintelligible speech/irrelevant	4	4	4	4	4
Slurred speech; does not make sense	3	3	3	3	3
Slurred speech; answers some questions	2	2	2	2	2
Imprecise speech; answers most questions	1	1	1	1	1
Baseline speech; lucid and appropriate	0	0	0	0	0
Tracing Curve					
Unable to participate	4	4	4	4	4
Makes mark on paper	3	3	3	3	3
Traces mostly out side of line	2	2	2	2	2
Traces mostly inside lines	1	1	1	1	1
Traces curve perfectly	0	0	0	0	0
Nystagmus					
Unable to participate	4	4	4	4	4
Profound nystagmus / can't follow finger with eyes	3	3	3	3	3
Moderate nystagmus / follows finger for short distance only	2	2	2	2	2
Minimal nystagmus / follows finger with eyes whole time	1	1	1	1	1
No nystagmus / follows finger with eyes whole time	0	0	0	0	0
Finger to Nose Testing					
Unable to participate	4	4	4	4	4
Coarsely unsteady / misses targets	3	3	3	3	3
Unsteady and inaccurate / barely touches targets	2	2	2	2	2
Steady / touches targets, but inaccurate	1	1	1	1	1
Steady / accurately touches targets	0	0	0	0	0
Total Score					
Health Care Provider Initials					

Scoring Reference

Category	Score	Visual Reference
Gross Motor Function		
Unable to cooperate; cannot sit up	4	
Can sit up, but unsteady	3	
Can sit up steadily	2	
Can stand and walk, but unsteady	1	
Can stand and walk steadily	0	
Mentation and Speech		
Unable to cooperate; unintelligible speech/irrelevant	4	
Slurred speech; does not make sense	3	
Slurred speech; answers some questions	2	
Imprecise speech; answers most questions	1	
Baseline speech; lucid and appropriate	0	
Tracing Curve		
Unable to participate	4	
Makes mark on paper	3	
Traces mostly out side of line	2	
Traces mostly inside lines	1	
Traces curve perfectly	0	
Nystagmus		
Unable to participate	4	
Profound nystagmus / can't follow finger with eyes	3	
Moderate nystagmus / follows finger for short distance only	2	
Minimal nystagmus / follows finger with eyes whole time	1	
No nystagmus / follows finger with eyes whole time	0	
Finger to Nose Testing		
Unable to participate	4	
Coarsely unsteady / misses targets	3	
Unsteady and inaccurate / barely touches targets	2	
Steady / touches targets, but inaccurate	1	
Steady / accurately touches targets	0	

10

Gaps & Application

- EDs are overwhelmed & need to reduce ED boarding¹⁵
- SMART Form facilitates prompt, safe transfer & eliminates ambiguity re: 'medical clearance'^{12,13} & unnecessary testing
- Gaps:
 - Lack of published research regarding the evaluation of the SMART Form with measurable outcomes
 - Provider satisfaction with SMART Form
- SMART Form meets HMC Goals: efficiently & effectively transferring patients from ED to BHU

11

Satisfaction Survey

1. What is your role at HMC?

- ED provider ED staff BHU provider
 BHU staff Administrator / Manager Other

2. How long have you been working at HMC in ED and/or BHU?

- Less than 1 year 1 to 4 years 5 to 10 years
 More than 10 years

3. In an average shift, how many patients with a chief complaint relating to a mental or behavioral health emergency (e.g., suicidal ideation, depressed, or behavioral issue) do you care for?

- Less than 1 1 to 3 4 to 7 7 or more

4. Please select the biggest issue with BHU admissions from the ED?

- Communication difficulties between BHU and ED
 Unclear criteria for BHU admission
 Long ED stay/boarding
 Other. Please briefly describe

Please indicate how satisfied you are with the following:

1-Very satisfied 2-Satisfied 3-Neutral 4-Dissatisfied 5-Very Dissatisfied

5. The BHU admissions process and workflow from the ED?

6. Communication between the ED and BHU regarding patient admissions?

7. The length of stay of mental/behavioral health patients in the ED prior to admission to the BHU?

8. **BASELINE:** Do you have anything else you would like to add or any other comments?

OR

8. **POST:** Do you have anything you would change or add to the SMART Form or any other comments?

12

Data Collection Tools

- Record measurable outcomes (e.g., LOS, # lab draws, # ancillary tests) via chart review
 - Pre-SMART Form implementation: same time of year as implementation
 - Post-SMART Form implementation
- Record utilization rates of SMART Form
- Satisfaction surveys
 - Anonymous via SurveyMonkey

13

What questions do you have?

14

References

1. Santillanes, G., Axcen, S., Lam, C. N., & Menchine, M. (2019). National trends in mental health-related emergency department visits by children and adults, 2009–2015. *The American Journal of Emergency Medicine*, S0735675719308423. <https://doi.org/10.1016/j.ajem.2019.12.035>
2. Snook, J., & Torrey, E. F. (2018, February 23). *America Badly Needs More Psychiatric-Treatment Beds*. National Review. <https://www.nationalreview.com/2018/02/america-badly-needs-more-psychiatric-treatment-beds/>
3. Levin-Epstien, M. (2015, November 18). *Psych units in the ED: Trend, solution, or neither?* <https://epmonthly.com/article/psych-units-in-the-ed-trend-solution-or-neither/>
4. Olshaker, J. S., Browne, B., Jerrard, D. A., Prendergast, H., & Stair, T. O. (1997). Medical clearance and screening of psychiatric patients in the emergency department. *Academic Emergency Medicine*, 4(2), 124–128.
5. Thrasher, T. W., Rolli, M., Redwood, R. S., Peterson, M. J., Schneider, J., Maurer, L., & Repplinger, M. D. (2019). 'Medical clearance' of patients with acute mental health needs in the emergency department: A literature review and practice recommendations. *WMJ*, 118(4), 9.
6. Williams, E. R., & Shepherd, S. M. (2000). Medical clearance of psychiatric patients. *Emergency Medicine Clinics of North America*, 18(2), 185–198. [https://doi.org/10.1016/S0733-8627\(05\)70117-6](https://doi.org/10.1016/S0733-8627(05)70117-6)
7. Nordstrom, K., Berlin, J. S., Nash, S. S., Shah, S. B., Schmelzer, N. A., & Worley, L. L. M. (2019). Boarding of mentally ill patients in emergency departments: American Psychiatric Association resource document. *Western Journal of Emergency Medicine*, 20(5), 690–695. <https://doi.org/10.5811/westjem.2019.6.42422>
7. Substance Abuse and Mental Health Services Administration (SAMHSA). (2020). *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55)*. Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>

15

References (cont.)

8. SAMHSA. (2019, December 18). *2017-2018 National Surveys on Drug Use and Health: Model-Based Estimated Totals (in Thousands) (50 States and the District of Columbia)*. Retrieved September 3, 2022
9. KFF. (2020b). Kaiser Family Foundation analysis of Substance Abuse and Mental Health Services Administration (SAMHSA)'s restricted online data analysis system (RDAS), National Survey on Drug Use and Health (NSDUH), 2017 and 2018, Substance Abuse and Mental Health Data Archive. *Kaiser Family Foundation*. <https://www.kff.org/state-category/mental-health/>
10. KFF. (2020a). Health insurance coverage of the total population. *Kaiser Family Foundation*. <https://www.kff.org/other/state-indicator/total-population/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>
11. University of Hawaii. (2021). *Annual report on findings from the Hawai'i physician workforce assessment project*. University of Hawai'i. <https://www.ahcc.hawaii.edu/workforce-page/1>
12. SSVMS. (2015, July 28). Crisis in the emergency department: Removing barriers to timely and appropriate mental health treatment. *Sierra Sacramento Valley Medical Society* Retrieved July 16, 2022 from http://smartmedicalclearance.org/wp-content/uploads/2017/09/ssvms-crisis_in_the_emergency_dept.pdf
13. Nwaobiora, C. J. (2017). The SMART medical clearance protocol as a standardize clearance protocol for psychiatric patients in the emergency department. *International Journal of Current Research*, 9, 8.
14. SSVMS. (2022). SMART medical clearance: A project of the Sierra Sacramento Valley Medical Society. *Sierra Sacramento Valley Medical Society*. Retrieved March 11, 2022 from <http://smartmedicalclearance.org>
15. Rasouli, H. R., Aliakbar Esfahani, A., & Abbasi Farajzadch, M. (2019a). Challenges, consequences, and lessons for way-outs to emergencies at hospitals: A systematic review study. *BMC Emergency Medicine*, 19(1), 62. <https://doi.org/10.1186/s12873-019-0275-9>

16

Appendix S**LOS Statistics****Table S1***LOS Group Descriptives*

Group	N	Mean	SD	SE	Coefficient of Variation
Pre	22	6.314	5.285	1.127	0.837
Post	12	16.008	19.622	5.664	1.226

Table S2*LOS Independent T-Test*

	t	df	p	Mean Difference	SE Difference	Cohen's d	SE Cohen's d
LOS	2.201	32	0.035	9.695	4.405	0.790	0.393

Appendix T

Blood Draw Statistics

Table T1

Blood Draw Group Descriptives

Group	N	Mean	SD	SE	Coefficient of Variation
Pre	22	1.136	0.990	0.211	0.871
Post	12	2.500	0.905	0.261	0.362

Table T2

Blood Draws Independent T-Test

	t	df	p	Mean Difference	SE Difference	Cohen's d	SE Cohen's d
# Blood Draws	3.951	32	< 0.001	1.364	0.345	1.418	0.461

Appendix U

Ancillary Tests Statistics

Table U1

Ancillary Tests Group Descriptives

Group	N	Mean	SD	SE	Coefficient of Variation
Pre	22	0.591	1.919	0.409	3.247
Post	12	0.417	0.515	0.149	1.236

Table U2

Ancillary Tests Independent T-Test

	t	df	p	Mean Difference	SE Difference	Cohen's d	SE Cohen's d
# of Tests	-0.307	32	0.761	-0.174	0.568	-0.110	0.360

Appendix V
Demographic Data

Table V1
Comparison LOS for Male Patients

Patient	Pre	Patient	Post
A	6.1	BB	5.7
B	5	GG	5
P	2.7	II	37.7
S	3.1	QQ (*MED ADMIT)	18.7
B1	5.3	DD1	9.9
D1	6.3	NN1	8.7
H1	1.8		
J1	9.5		
M1	2.3		
O1	4.2		
P1	8.1		
AVG LOS:	4.9	AVG LOS:	14.3
		W/O ADMIT: LOS	9.6

Table V2
Comparison LOS for Female Patients

Patient	Pre	Patient	Post
---------	-----	---------	------

E	23.2	XX	64.5
F	4.1	ZZ	48.6
K	1.3	HH1	6.9
L	7.8	MM1	5.1
Q	3.6	OO1	5.1
V	6.8	QQ1	4.6
Z	18.2	TT1	9.3
F1	3.6		
I1	9.7		
N1	3.5		
P1	8.1		
AVG LOS:	8.2		20.6

Table V3*Insurance Pre-Implementation LOS Comparison*

PRE	MEDICARE/MEDICAID	PRIVATE	GOV	U/NONE
A	6.1			
B		5		
E	23.2			
F		4.1		

K		1.3		
L		7.8		
P		2.7		
Q	3.6			
S	3.1			
V		6.8		
Z	18.2			
B1	5.3			
D1	6.3			
F1	3.6			
H1	1.8			
I1			9.7	
J1	9.5			
M1	2.3			
N1				3.5
O1	4.2			
P1	8.1			
Q1	2.7			

AVG:	7	4.6	9.7	3.5
-------------	----------	------------	------------	------------

Table V4*Insurance Pre-Implementation LOS Comparison*

POST	MEDICARE/MEDICAID	PRIVATE	GOV	U/NONE
BB		5.7		
GG		5		
II	37.7			
QQ	18.7			
XX		64.5		
ZZ	48.6			
DD1		9.9		
HH1	6.9			
MM1	5.1			
NN1	8.7			
OO1	5.1			
TT1	9.3			
AVG:	17.5	21.275		

Appendix W

Survey Results (Pre and Post)

Table W1

Survey Q#1 Role at HMC Results

Survey	ED Provider	ED Staff	BHU Provider	BHU Staff	Administrator/Manager
Pre	7	0	1	9	1
Post	5	0	1	5	0

Table W2

Survey Q#2: Length at Position Results

Survey	1 <1 yr	2 1-4 yrs	3 5-10 yrs	4 >10 yrs
Pre	2	4	7	4
Post	0	0	9	2

Table W3

Survey Q#3: Average Number of Patients Results

Survey	1 <1 pt	2 1-3 pts	3 4-7 pts	4 8+ pts
Pre	1	7	1	8
Post	0	5	1	5

Table W4

Survey Q#4: Select Biggest Issue with BHU Admissions Results

Survey	1 Communication	2 Unclear Criteria	3 Long LOS	4 Other

Pre	4	2	7	4
Post	5	0	2	4

Table W5*Pre-Survey Q: "Other Comments"*

#	Comment
1	Patient's not thoroughly cleared, arriving with unaddressed medical issues.
2	Diagnostic Overshadowing. Patient being cleared too quickly!
3	Patients are not completely medically cleared before admitting to BHU. Meds are not AM reconciled, wrong meds end up being ordered by telepsych.
4	unaddressed medical issues / medically cleared too soon

Table W6*Post-Survey Q: "Other Comments"*

#	Comment
1	admitting pt.'s to BHU with untreated medical issues.
2	Have not been using SMART form
3	ED has not always been following the SMART form protocol and/or it is not showing up on the ED report
4	No change

Table W7*Survey Q#5: Satisfaction with BHU Process/ED Workflow Results*

Survey	1 Very Dissatisfied	2 Dissatisfied	3 Neutral	4 Satisfied	5 Very Satisfied
Pre	0	7	6	4	0
Post	0	4	5	2	0

Table W8*Survey Q#6: Satisfaction with Communication Results*

Survey	1 Very Dissatisfied	2 Dissatisfied	3 Neutral	4 Satisfied	5 Very Satisfied
Pre	4	5	5	3	0
Post	0	4	7	0	0

Table W9*Survey Q#7: Satisfaction with ED LOS Results*

Survey	1 Very Dissatisfied	2 Dissatisfied	3 Neutral	4 Satisfied	5 Very Satisfied
Pre	0	10	6	1	0
Post	1	3	6	1	0

Table W10*Pre-Survey: Q#8—Any other comments, questions or concerns?*

#	Responses
1	Admitting covid patient in BHU

2	The BHR program was more thorough in screening patients, gathering collateral and communication was better because the BHR nurse was from the BHU (this facilitated better communication prior to and at time of admit). The BHR was able to review with the psychiatrist the medical issues and medications prior to admission. With the BHR system the patient was more accurately made aware of what to expect as an inpatient, possibly less anxious on admit.
3	When patients come in with medical issues causing them to be suicidal those issues are almost always ignored, and patient will be admitted to the psych unit. Patients are not medically cleared, and telehealth consults are being initiated.
4	None
5	There are admission policies in place that are not consistently being followed.
6	As physicians we have very little communication with BHU, typically handled by social work or charge nurse.

Table W11

Post-Survey: Q#8—Any to change or add to SMART Form or other comments?

#	Responses
1	ED providers don't seem to be using it
2	NOTHING AT THE MOMENT.
3	As I said, I have not been using this in the ED, so has not been emphasized, at least to me. I would be curious as to overall utilization to see if it's just me. As is often the case, adding clicks and forms and the like to help "facilitate" things in the ED often just adds to the loads of computer work that we already have to do.

4	we haven't started using it yet, or i have not seen it being done on BH patients in ED.
5	Does not seem to be beneficial or helpful . Would just like more communication or better way to dispo patients . often this is no one's fault, and there is just not a quick disposition as these are complicated with substance abuse.

Appendix X
Hospital Census Data

Table X1
Project Hospital Census

	ED Visits	ED Psych Visits	ED Psych Visit Rate (%)
January 2022	3431	520	15.2
February 2022	2686	519	19.3
March 2022	3108	584	18.8
April 2022	3179	533	16.8
May 2022	3508	504	14.4
June 2022	3521	507	14.4
July 2022	3504	560	16
August 2022	3376	558	16.5
September 2022	3205	541	16.9
October 2022	3403	578	17
November 2022	3478	567	16.3
December 2022	3417	542	15.9
January 2023	3548	523	14.7
February 2023	3093	520	16.8