RESEARCH ARTICLE

THE SMART MEDICAL CLEARANCE PROTOCOL AS A STANDARDIZE CLEARANCE PROTOCOL FOR PSYCHIATRIC PATIENTS IN THE EMERGENCY DEPARTMENT

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ABSTRACT

In 2009, Sacramento County Mental Treatment Center (SCMHTC) shut down half of the 100 inpatient beds in the only Crisis Stabilization Unit (CSU) in the county causing patients who depended on the county mental health with limited resources. The lack of resources in the community resulted in long wait times for appointments in the county outpatient facilities. Due to these complications, psychiatric patients resorted to the Emergency Departments (ED) for their treatment, causing an influx of psychiatric patients, poor and sometimes sub-therapeutic care from the ED clinicians. To formulate a better process to care for the patients in the ED, the Mental Health Improvement Coalition comprising of leaders from the Hospital Council of Northern and Central California region and other stakeholders worked with Sacramento County healthcare providers with goals of reducing the incidence of psychiatric crisis in the ED. The proposal included a strategy to ensure that psychiatric patients have access to quality medical care, both when they present to the ED, and when they transfer to the psychiatric inpatient facilities. This lead to a proposal to standardize the medical clearance process across all EDs in the Sacramento region, and inpatient psychiatric treatment programs. To facilitate the timely transfer of patients to appropriate treatment centers, the SMART medical clearance protocol was developed to provide a guide for ED physicians to medically stabilize patients.

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INTRODUCTION

The Centers for Disease Control and Prevention estimate that 25% of adults in the U.S. have some form of mental illness and that up to 50% of adults will develop a mental illness at some time in their life. As the numbers increase, so is the co-occurring physical and medical conditions of this population, a good number of adult mental health patients have at least one medical condition. Due to their mental health conditions, the patients often time neglect that aspect of their life, leading to decrease quality of life and increased cost of treatment. Caring for the psychiatry patients presenting with mental health crisis is a collaborative effort between the outpatient providers and the hospital, however most of these patients have no outpatient providers and rely on the emergency room for their care. The influx of psychiatric patients in the EDs have continued to escalate, the prevalence of medical problems such as diabetes, hypertension, endocrine and metabolic disease are also on the increase. Patients that present to the ED often for psychiatric crisis end up receiving treatment for medical issues, with appropriate screen tools in the ED, these illnesses can be

detected early and treated before it spirals out of control. In the Sacramento area of Northern California, there is a high utilization of thee ED for mental health reasons and subsequent inpatient hospitalizations. Over 1,600 children and adults experiencing a mental health crisis end up in emergency departments (ED) monthly, this is partly due to the closure of 50% beds of the County's mental health facility in 2009, patients who relied on this facility lost their resources and turned to ED for their mental health treatment. Due to this problem, the Sierra Sacramento Valley Medical Society (SSVMS) developed a white paper "Crisis in the Emergency Department", to assess issues surrounding these problems. As part of their work, they proposed to standardize the medical clearance process in the ED by introducing the SMART clearance protocol across all EDs and inpatient psychiatric facilities to assist in screening for medical illness that are missed, facilitate timely transfer of patients to appropriate treatment centers when cleared by the ED physician. This standardization was hoped to streamline the admission and transfer process of patients requiring inpatient psychiatric treatment from the EDs in the Sacramento area. The SSVMS developed an acronym "SMART" medical clearance protocol which used a set of algorithms to identify patients during the triage process to determine the nature and severity of their

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illness and potential medical complications. If all SMART categories can be answered with "NO" then the patient is considered medically cleared and no additional testing is indicated. If any SMART category cannot be answered with "NO" then appropriate testing and/or documentation of rationale for medical clearance must be reflected in the patient's chart. This effort was initiated was implemented in August 2016. The SMART medical clearance would be used in all area inpatient facilities and the EDs to provide a standard of accepting patients and reducing unnecessary lab work and extend length of stay in the ED after psychiatric evaluations. Review of relevant literature identified similar undertakings, in a similar intervention conducted by the Illinois Hospital Association Behavioral Health Steering Committee, a task force was established to consider and document best practices associated with treatment of patients with mental and substance use illnesses in the emergency department. Their goal was to examine the care delivered to mental or substance use disorder patients in the Illinois hospital emergency departments. During this period, they identified models of care and practices currently used in Illinois hospitals and recommended the use of a predetermined triage system or scale to ensure timely and appropriate evaluation and treatment of psychiatric patients.

With regards to urine toxicology, the committee recommended that routine urine toxicology screens need not be performed as part of assessment (in medically stable patients); Drug screens should not delay patient transfers to psychiatric facilities and that the examining physician should determine whether and what tests to order based on the patient's presentation. This process however is done after the ED physician has identified areas where the patient presents with conditions in need of further investigation and is able to make clinical decisions necessary for further diagnostic testing. Turner and Zun, (2015), discussed different components for medical clearance of psychiatric patients in the ED and addressed the use of medical clearance components to screen for medical issues. The article highlighted the lack of standard protocol among different institutions and practitioners and they recommended the use of history and physical (HandP) as an essential component of the medical screening and agreed that unnecessary testing creates unnecessary costs to patients and can create false positives. This study demonstrated the importance of medical clearance of psychiatry patients. In another study, a medical evaluation was conducted on 100 patients with new-onset of psychiatric symptoms by Henneman *et al* (1994), they found that 63% of patients had an "organic" etiology. Routine comprehensive laboratory screening was recommended as an integral part of the medical evaluation of alert patients with new psychiatric symptoms, this study however is in contrast with Olshaker *et al* (1997), who over a two-month period complete data set was available for 345 patients, 65 of those had medical problems. History (94%), Physical examination (51%), vital signs (17%), and laboratory testing (20%) had sensitivities for identifying these medical problems.

Screening without universal laboratory testing would have missed 2 asymptomatic patients with mild hypokalemia. The study found 19% had medical conditions that were identified through history and physical exam (HandP) and vital signs and concluded that laboratory test had a low yield in identifying medical conditions. Also, Janiak and Atteberry, (2012) sort to determine if routine screening laboratory studies performed in the ED on patients with psychiatric chief complaint would alter ED medical clearance. In a retrospective chart review of 519 consecutive adult patients, history and physical examination, laboratory study results, and patient disposition was conducted to determine if any of the laboratory abnormalities identified after admission would have changed ED management or disposition of the patient if they had been identified while in the ED. Out of 502 patients who met inclusion criteria, laboratory studies were performed in the ED for 148 patients, 50 of them had completely normal laboratory studies. Only one case (0.19%) was identified in which an abnormal laboratory value would have changed ED management or disposition of the patient had it been found during the patient's ED visit. They concluded that patients presenting to the ED with a psychiatric chief complaint can be medically cleared for admission to a psychiatric facility by qualified emergency physicians using an appropriate history and physical examination and no need for routine medical screening laboratory tests.

In a prospective studyAmin and Wang (2009) studied psychiatric patients who presented to the ED to determine the value of routine lab for medical clearance, physical exams (PE) and laboratory tests were performed on 375 patients, 56 patients (14.9%) had non-substance induced laboratory abnormality, 42 of the 56 had abnormal history or physical exam (PE) indicating laboratory screening. The remaining 4 patients with normal HandP and PE had abnormal urinalysis however it did not affect the final disposition of the patients. The authors concluded that the history and PE is sufficient in patients with psychiatric complaints for whom there is documentation of previous psychiatric history and a normal history and PE. Zunand La Vonne (2015), to determine the reasons for readmissions of psychiatric patients who have previously presented to ED conducted a retrospective chart review of 350 randomly selected psychiatric patients who returned within 90 days of their previous visits. Their study revealed a significant difference (p - .01) between admissions on the first, second and third ED visits. On the first visits 100% were psychiatric presentation, depression, schizophrenia, psychosis and schizoaffective disorder, on the second and third visits most common reasons were 61.9% psychiatric, 9.2% musculoskeletal, 5.7% cardiovascular was 5.7%, 4.3% neurologic and 3.2% dermatological reason. Study proved that 30% of readmissions within 90 days was for medical illness and concluded that a 2-pronged approach toward treatment should be developed. The study however did not identify if the patients were medically stabilized or cleared with a clearance protocol or laboratory work during their first visit. Anderson *et al* (2016) noted that efforts have been made to standardize the evaluation of psychiatric patients and creation of guidelines but have been met with resistance by both the ED physicians and the mental health professionals.

Research Question

"For psychiatric patients that present to the emergency room, does the use of a medical clearance protocol compared to diagnostic or lab work for medical stabilization improve transfer time to inpatient psychiatric facilities and decrease the length of stay in the ED in a 24-hour period"?

Hypotheses

The best available evidence indicated that a thorough history and physical examination, including vital signs, are the

minimum necessary elements in the evaluation of psychiatric patients.

MATERIALS AND METHODS

Setting

The selected hospital for this project is a non-for-profit organization; part of a large hospital health network located in metropolitan Sacramento overlooking a busy network of highways in the downtown area. The hospital is a member of the Association for Community Health Improvement (ACHI). This organization provides tools and resources to help enhance performance in achieving community health goals. The geographic catchment areas serviced by this hospital include North Highlands, Del Paso Heights, North Downtown Area, South Sacramento, both 95824 and 95838 zip codes, and Del Paso Heights with estimated total population of about 206,286, according to the Community Health Needs Assessments (CHNA) conducted in 2013. The emergency room experience is replete with evidence that patients with acute psychiatric crisis are unable to provide accurate medical histories during triage, hence the need for a SMART protocol that can facilitate history taking with ruling out medical conditions mimicking psychiatric illnesses. Planning and intervention was done in August 2016 after an assessment for the need to implement and evaluate this protocol was conducted in the microsystem. The implementation team consisted of representatives from the ED, (physicians, nurse practitioners, physician assistants, nurses, unit secretaries), representatives from the psychiatric response team (PRT) made up of psychiatrists, psychiatric mental health nurse practitioner (PMHNP), licensed clinical social workers (LCSW), patient care support specialist (PCSS).

The IT/Helpdesk representative assisted in programing the SMART protocol in the epic super users. The patients were randomly monitored, while maintaining their confidentiality and respect. The Electronic Health Record (EHR) was reviewed for psychiatric patient data presenting with mental health related symptoms including anxiety disorders, schizophrenic disorders, episodic mood disorders, paranoid states, personality disorders, depression, other non-organic psychoses and cases of dementia, and other organic psychotic conditions. The triage notes, patient demographics, history and physical, mental health evaluation, the use of the SMART protocol clearance, patient disposition and the length of stay in the ED post psychiatric evaluation. The project monitored the outcome and progress to determine success of the 6-month pilot program. The implementation team reported monthly progress, and the PRT measured the length of stay, the clearance to psych evaluation and the triage to clearance time frame. The tool was useful in identifying the patients that had medical comorbidities. The SMART Clearance tool (figure 1), uses a 5-quesiton algorithm to identify patients needing more focused assessment by the ED physician. The information may come directly from the patient, history from family members or due to abnormal vital signs.

S: Suspect of "New Onset" psychiatric condition, helps identify patients presenting with mental health crisis or with no known history of psych illness. If such patients are identified, they will need further workup to rule out any medical conditions that may cause a patient to have abnormal behavior or thought process. A patient with psychiatric symptoms caused by a medical condition will be worked up and admitted on the medial floor for further monitoring rather than be sent to a psychiatric facility. The history of a patient with psychiatric symptoms should be taken like any other emergency department patient, paying special attention to the psychiatric symptoms.

M: medical condition requiring screening such as diabetes, pregnancy and other complaints that require screening. Any patient with a history of diabetes or symptoms requires to be screened and if there are out of the range indicated on the form, <60 or >250, then basic lab workup needs to be done. If they are higher, then focused medical test needs to be completed. If uncontrolled diabetes requires insulin administration and glucose checks the accepting facility must have those capabilities. For female patients within the ages of 12 and 50 or still child bearing, a urine pregnancy test is indicated, for other complaints or symptomspatients should be screened for any complaints they come in with, regardless of their mental status before being medically cleared.

A:Vital signs in the range and parameters that would require further screening such as patients that are bradycardic with a heart rate less than 50, or tachycardia HR>110, they need further monitoring, EKG or cardiac workup maybe required. Physicians can also document if the cause of the change in HR is known and their reason for no further workup when indicated. If an EKG is done to determine that a patient has a chronic heart condition, that also should be indicated in the patient's chart. Figure 1 – SMART Tool Under mental status section, a confused and disorganized patient who is not alert and oriented would need further workup to determine what could be causing the disorientation. If a patient is clinically intoxicated, regardless of their presentation, an H-Impairment Index (HII) score of '4" or more is considered abnormal and would warrant a thorough history and physical. An HII index (Figure 2) is a way to assess the patient to see if they are

clinically sober or intoxicated. This helps identify chronic alcohol users who may have a high blood alcohol level at baseline but are clinically sober or intoxicated.

estimated time of clearance, using the evidence based calculations of 30 points drop/hour.

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

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Figure 2.

The HII score form is a 5-section form which tests Gross Motor Function, Mentation and Speech, Tracing Curve, Nystagmus and Finger to Nose Testing. On the bottom part of the form, a scoring reference assists the clinician to score the patients. To implement this in the ED, a patient suspected for intoxication or reports they have been drinking, the ED nursing staff conducts the HII score as indicated through a nursing communication order by the ED physician in epic. They will calculate the score, initial or sign and time stamp when it was done. A score greater than 4 indicates the patient is not clinically sober and will require a blood alcohol level (BAL) done. Once that is completed, the staff can calculate the

The result will fall to the normal. Threshold for evaluation which is less than 100 points prior to psychiatric assessment once the lab is redrawn. In the physical exam section, the SMART protocol endorses a thorough PE, to make sure patient is not missed out, they are properly gowned, and an extensive examination, and any abnormality will then be addressed.

R: for Risky presentation – for psychiatric patients less than 12 or greater than 55 years old who may need further for ingestion of substances such as overdosing on drugs, toxic agents should be addressed, intervention documented. Eating disorder patients should be monitored and treated, labs should be ordered to ensure electrolyte balances. Patients who admits

to using alcohol for up to 2 weeks, or those manifesting with symptoms of withdrawal should be closely monitored prior to being medically cleared.

T:Therapeutic levels needed are indicated if a patient is taking medications listed on the form, but not limited to only those. Any medication needing levels should be drawn as these are very important information for the accepting psychiatric facility. These labs should be drawn before they are cleared or transferred to inpatient psych facilities. A patient who identifies and acknowledges drug use need not draw a urine toxicology since we understand that the urine toxicology has both false positive and negative. However, if they have accompanying hallucinations, abnormal vital signs then further testing is indicated. For any concern not addressed in the form, doing full workup will be appropriate, additionally if the psychiatric response team requests a lab work done due to accepting facility concerns, the physician to address the issue to expedite disposition to inpatient facility.

Problem Description

The mental health needs are a consistent theme within the communities with issues including difficulty accessing mental health services, homelessness and other stressors. The EDs provide acute and advanced care to the Sacramento and the surrounding areas with quality primary and tertiary care and a continuum of services to meet the healthcare needs of people. Hundreds of patients experiencing psychiatric crisis end up in this ED due to the lack of appropriate treatment in the community. The ED visits and hospitalization rates due to mental health issues showed that Sacramento downtown area (95814) rate of ED visits due to mental health issues that was seven times the State rate and four times the County rate (Table 1). A report prepared by the Sierra Sacramento Valley Medical Society (SSVMS) in 2015, states that "every month over 1,600 children and adults experiencing a mental health

crisis end up in one of the Sacramento region's hospital emergency departments", increasing the need to improve care for this population.

RESULTS

According to Mallory and Knights (2015), "medical clearance protocols should follow the Emergency Medical Treatment and Active Labor Act (EMTLA) criteria screening and stabilization examination psychiatric patients have comorbid medical conditions that need treatment prior to transfer to a psychiatric hospital, however medical problems are sometimes neglected once patients present with psychiatric symptoms. The SMART medical clearance process was used to rule out patients presenting with psychiatric symptoms but had no prior psychiatric illness, in the month of August, 4 patients were identified as not having psychiatric illnesses but organic illness presenting with psychiatric symptoms and were dropped off from the psychiatric list. We also used the protocol to identify patients with new onset of psychiatric illnesses, further laboratory work was indicated to ensure medical illness or substance use were not the cause. Some patients who were not cleared with the SMART protocol were identified as being evaluated by the psychiatric team, and used as a standard process to determine whether the implementation of the SMART protocol in the ED reduced the length of stay and expedited placement in an in-patient psychiatric facility. The psychiatric response team (PRT) staff recorded the number of patients that were seen in the ED daily with information gathered from epic, the number that were SMART cleared, the length of stay of each of the patents and the disposition time and date. This information is represented in a run graph (Table 2) and compared with the process prior to implementation of this project (Table 3). According to data collected on medically cleared patients to assessment pre-SMART August 2016, number of hours between medical clearances to psychiatric evaluation was 2.58 hours, with a median average of 1.33 hours.

ED visit and hospitalization rates due to mental health issues compared to county and state benchmarks
(rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalization
Mental Health (overall)	North Highlands	**707**	**556**
	Downtown Sacramento (95814)	**2250**	**1464**
	Del Paso Heights, North of Downtown Area	**592**	**442**
	South Sacramento (Florin)	**549**	**358**
	South Sacramento (Meadowview)	**527**	**325**
	Del Paso Heights (95824)	783	442
	Sacramento County	**489**	**378**
	CA State	*149.39*	*186.92*

Source: OSHPD, 2013

POST SMART Medically Clear to Psych Eval For ED only Patients

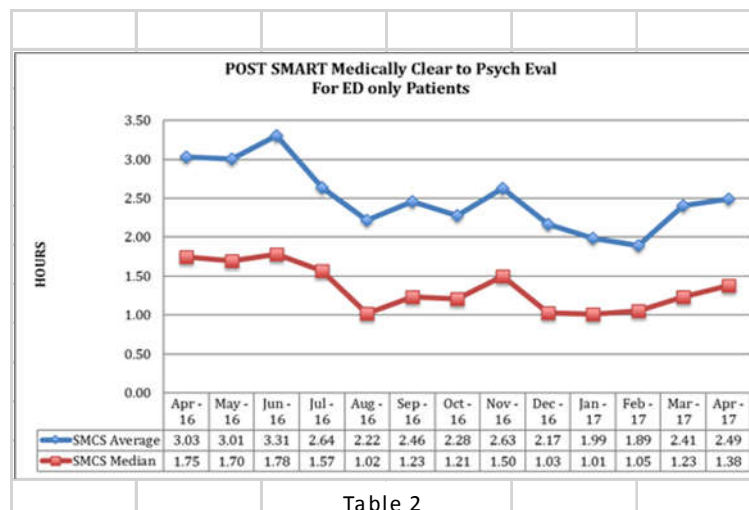|	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17
SMCS Average	3.03	3.01	3.31	2.64	2.22	2.46	2.28	2.63	2.17	1.99	1.89	2.41	2.49
SMCS Median	1.75	1.70	1.78	1.57	1.02	1.23	1.21	1.50	1.03	1.01	1.05	1.23	1.38

Table 2

In August 2016, after implementation of the protocol, the average hours from clearance to evaluation was 2.22 hours with a median average of 1.02 hours.   To evaluate the effectiveness of the SMART clearance on the length of stay in the ED from clearance time to evaluation we compared patients who were cleared with SMART to those not cleared with SMART and compared the clearance to evaluation time, and triage to clearance time with the old process.

The implementation also facilitated identification of patients with comorbid illnesses mimicking psychiatric symptoms, this eliminated the need for psychiatric evaluation. The protocol did not mandate laboratory test on all patients except when clinically indicated, this aided for quicker and safer medical clearance, evaluation and disposition time in certain cases. As depicted in the bar graphs the average length of stay for patients who were not SMART cleared (Figure 2) in September

Medically Clear to Behavioral Health Eval For ED only Patients Data previous to August 2016

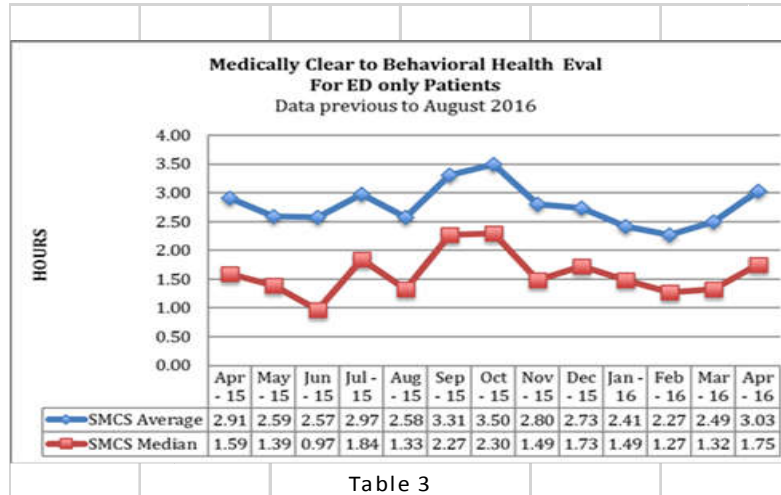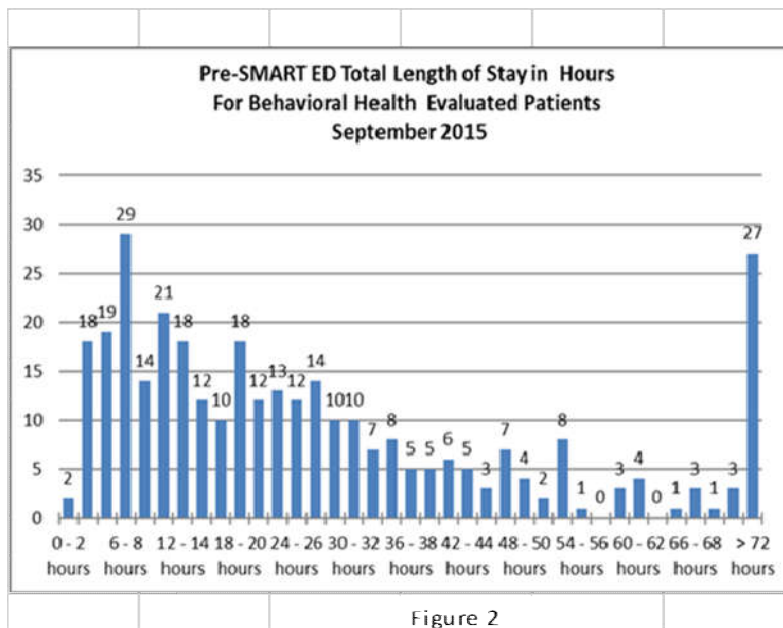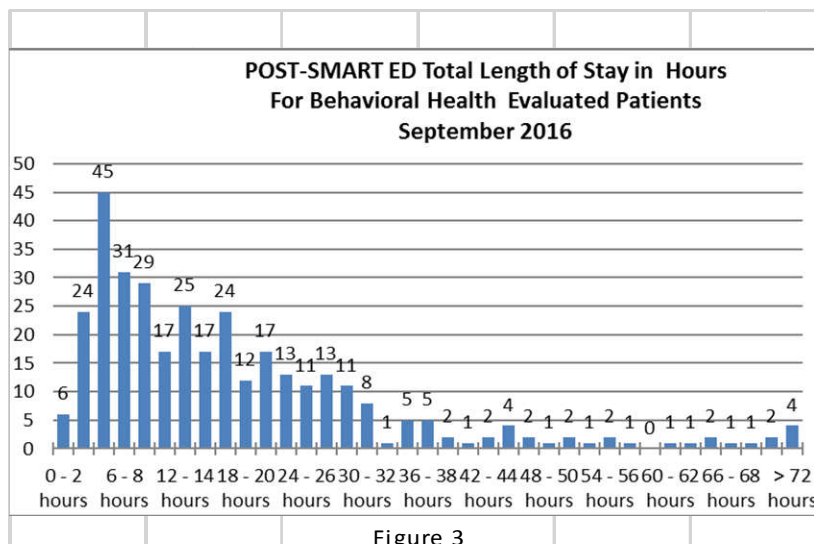|	Apr - 15	May - 15	Jun - 15	Jul - 15	Aug - 15	Sep - 15	Oct - 15	Nov - 15	Dec - 15	Jan - 16	Feb - 16	Mar - 16	Apr - 16
SMCS Average	2.91	2.59	2.57	2.97	2.58	3.31	3.50	2.80	2.73	2.41	2.27	2.49	3.03
SMCS Median	1.59	1.39	0.97	1.84	1.33	2.27	2.30	1.49	1.73	1.49	1.27	1.32	1.75

Table 3

Figure 2

Figure 3

2015, and those who were SMART cleared (Figure 3) in September 2016. According to data, 27 patients stayed in the emergency room longer than 72 hours in September 2015 prior to the implementing of SMART.

comorbidities. To have a successful engagement with the patients, we found out that attending to their medical needs help establish patients need for primarily medical or psychiatric placement.
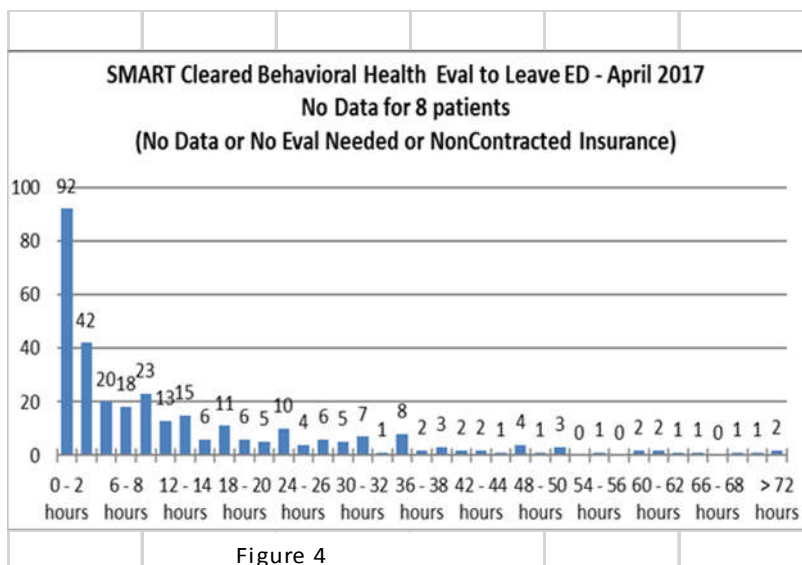

Figure 4

In September 2016, 4 patients stayed longer than 72 hours in the ED. In April 2017 (Figure 4), 2 patients were in the ED longer than 72 hours, 92 left the ED within 72 hours of being evaluated and 20 stayed longer than 48 hours. The average time to evaluation did not meet the target of <90 minutes for all 6 months during the pilot in the 4th quarter of 2016 (2.36 hours). The average time to evaluation fell by 3% in comparison to 3rd Quarter 2016. The median response time for the quarter met the target with 1.25 hours and is a more accurate measure of true response times as it eliminates the outliers who take several hours to metabolize substances (prescribed or illicit) and can fully participate in evaluations beyond medical clearance.

DISCUSSION

Implementing the project was focused towards improving the medical clearance of psychiatric patients that present to the ED using the SMART algorithm to ensure patients are properly screened prior to evaluation and placement. This protocol was implemented by using the algorithm SMART to ask the five questions, if the answer to all questions are "No", then no further testing is indicated and the patient will be medically cleared, and can be evaluated by psychiatric team, if however, there is a 'yes' answer, the ED physician addresses the problem prior to referring the patient to psychiatry. The tool also has served a significant purpose in testing impairment level of patients with alcohol in their system by using the H-Impairment Index score (HII), as an alternative of doing the laboratory test for blood alcohol level (BAL). The HII score tests the gross motor function mentation and speech, tracing curve, nystagmus and finger to nose testing. A patient is referred to psychiatric evaluation with a score of 4 and below, anything higher is retested and recorded prior to assessment. Since the number of the patients seen for psychiatry crisis have increased, this protocol has reduced clearance time by ED physicians. There is a uniform and systematic method of assessment that is a standard for this patient population in the area and those who require inpatient psychiatric admissions. Patients who are medically stable have limited barriers to placement and are placed faster than those with medical

During a busy shift, it is difficult to assess these needs, however with the SMART protocol, physicians can address the basic issues. The need to find appropriate treatment facilities for these patients and reduce the length of stay in the ED contributed to the success of this process. Although some physicians constantly fail to use the clearance protocol, the psychiatric response team are quick to identify the physician and approach them with the need for SMART clearance. For patients who are unable to provide information due to altered mental status, the SMART protocol is a critical tool to improving the approach to care, and due to the additional benefit of identifying the basic needs of the patient, another facility has adopted the SMART clearance protocol. The PMHNP work in conjunction with the psychiatrist, ED physicians, nurses and other interdisciplinary team members to identify both medical, psychiatric and psychosocial needs of these patients. As a member of the treatment team, the PMHNP strengthens the rapport between the patients and other members of the team, and functions as a liaison between these group and the treatment team.

The data for LOS and med clearance times pre-and post-SMART pilot for all patients presenting with behavioral health needs were gathered through epic, and indicates that from January to – July 2016, the average clearance time was 20.85 hours and SMART, Aug – Nov 2016, was 17.75 hours and shows a 14.9% decrease in LOS. The average medical clearance indicating from the time the patient enters the ED to when the medical clearance is charted in the record or PRT team is notified indicates from Jan – Jul: 3.28 hours, and after implementation of SMART, from Aug – October is 3.09 Hours. This is a 5.7% decrease in clearance time. The correlation between SMART implementation and decrease in LOS is positive. but other variables exist that are potential confounders/contributors to the cause of the decreases i.e. increased PRT clinical staffing to target high volume times, 7.3% decrease in patient visits pre-and post-pilot periods, etc. Data collected from August 2014 to March 2015 showed that the average time for evaluation after medical clearance was 2.73 hours, whereas, between August 2016 to March 2017 the average hours to evaluation was 2.28 hours with an

improvement of 45 minutes over the pre-SMART process. There was no dramatic change in assessment time noted, and it is worthy to note that some variables such as increase in full time employees (FTE) also contributed to the overall improvement. With regards to disposition time due to the implementation of the process, there are other variables such as insurance type, age and bed availability in the community that have contributed to the swift disposition of the patients. While these screening algorithms are promising, none have been prospectively analyzed. In findings from other publications, History and Physical were effective to determining history of mental illness. The implementation of the SMART medical protocol is clearly identified as a needed process in the Sacramento area EDs and inpatient psychiatric facility. In other to continue with compliance and use of this protocol, the ED physicians, nurses and the PRT will continue to collaborate amongst team members to utilize all available resources, evidence based practice to review data and ensure sustainability of the project. Further evaluation needs to include the financial benefits and reduction of cost for the organization. Identify and measure other contributory factors to extended length of stay in the emergency department, study and evaluate a one- year actual savings due to the implementation of the SMART protocol. Conduct a Sacramento County Community Health Needs Assessment to identify shift in mental health needs and hospitalization in the area.

REFERENCES

Agency for Healthcare Research and Quality. Mental disorders and/or substance abuse related to one of every eight emergency department cases: Research activities. http://archive.ahrq.gov/news/newsletters/research-activities/sep10/0910RA35.html

Alakeson, V., Pande, N., and Ludwig, M. 2010. A plan to reduce emergency room 'boarding' ofpsychiatric patients. Health Aff. 2010;29(9):1637-1642.

American College of Emergency Physicians 2011. Consensus statement medical clearanceprotocols for acute psychiatric patients referred for inpatient admission. New Jersey Hospital Association.http://www.njha.com/media/33107/ClearanceProtocolsforAcutePsyPatients.pdf

Amin, M., and Wang, J. 2009. Routine laboratory testing to evaluate for medical illness in psychiatric patients in the emergency department is largely unrevealing. *Western Journal of Emergency Medicine*, 10(2), 97–100.

Application of a Medical Clearance Protocol Primary Psychiatry, May 21, 2013 http://primarypsychiatry.com/application-of-a-medical-clearance-protocol/

Broderick, K.B., Lerner, B., McCourt, J.D., 2009. Emergency physician practices and requirementsregarding the medical screening examination of psychiatric patients. *AcadEmerg Med.* 2002;9(1):98-92.

Chang, G., Weiss, A.P, Orav, E.J. 2001. Hospital variability in emergency department length of stay for adult patients receiving psychiatric consultation: a prospective study. *Ann Emerg Med.* 2011 Jan 10. [Epub ahead of print].

Crisis in the Emergency Department: Removing barriers to timely and appropriate mental health treatment. A report prepared by the Sierra Sacramento Valley Medical Society. White paper published July 28, 2015.

D'Orazio, J.L., 2015. A Medical Clearance of Psychiatric Patients: Pearls and Pitfalls. *emDocs*

Glauser, J., and Marshal, M. 2011. Medical clearance of psychiatric patients: Emergency medicine reports: Practical, Evidence-Based Reviews in Emergency Care.

Illinois Hospital Association 2007. Best practices for the treatment of patients with mental and substance use illnesses in the emergency department. http://www.aha.org/content/00-10/2007oct-ihabehavreport.pdf

Janiak, B.D., and Atterberry, S. 2011. Medical clearance of the psychiatric patient in the emergency department; *The Journal of Emergency Medicine J Emerg Med.*, 2012; 43(5):866-870.

Juhnke, G.E. 1994. "SAD PERSONS scale review." Measurement and evaluation in counseling and development, 27, 325-328

Korn, C.S., Currier,G., W and Henderson, S. O. 2000. Medical clearance of psychiatric patients without medical complaints in the emergency department. *J Emerg Med.*18. (2):173-176.

Letvak, S. and Rhew, D., 2015. Assuring Quality Health Care in the Emergency Department. Healthcare., 3, 726-732; doi:10.3390/healthcare3030726

Luken, T.W., Wolf, S.J, and Edlow, J.A, 2006. Clinical policy: critical issues in the diagnosis and management of adult psychiatric patient in the emergency department. *Ann Emerg Med.*, 47(1):79-99.

Mallory, M., and Nan S. 2015. Medical stabilization and clearance of the psychiatric patient. *Emergency Medicine*. 2015 July; 47(7): 298-305. https://www.ahcmedia.com/articles/131985-medical-clearance-of-psychiatric-patients

Manton, A. 2013. Care of the psychiatric patient in the emergency room: White Paper, Emergency Nurses Association. https://www.ena.org/practiceresearch/research/

McKenna, M. 2011. The growing strain of mental health care on emergency departments few solutions offer promise. *Annals of Emergency Medicine,* 57 (6), pp. 18A-20A http://dx.doi.org/10.1016/j.annemergmed.2011.04.013

Michael, E., Levin-Epstein, J.D, 2015. Psych units in the ed: Trend, solution, or neither? November 18, 2015, *Emergency Physicians Monthly*

Splete. H. 2009. Initiative eases mental health burden in EDs. *ACEP News*. September 2009. http://www.acep.org/content.aspx?id46232.

Zun, L., S. 2005. Evidence-based evaluation of psychiatric patients. *J Emerg Med.*, 28(1):35-9

Zun, LS., Leikin, J.B., Stotland, N.L., Blade, L. and Marks, R.C. 1996. A Tool for the emergency medicine evaluation of psychiatric patients. *Am J Emerg Med.*, 14(3):329-333.

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