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Effects of Having a Pediatric Psychiatrist in the ED & creation of a Bridge Clinic

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Abstract

Objective: The rates of pediatric psychiatric patients who present to the Emergency Department (ED) have increased by 20% in the past ten years. There has been limited investigation into addressing this surge. This retrospective Quality Improvement (QI) study evaluates the impact of creating two programs within this Healthcare system to address the pediatric ED mental health patient surge and boarding crisis. The first intervention was having a pediatric psychiatry consult service (PPCS) to the ED and the second was creating a bridge clinic.

Methods: Psychiatry patients in the ED were seen consistently by the PAAT throughout the study. Measurements were performed one year prior to (n=853) and after (n= 825) the addition of a PPCS to the ED. An analysis of the PPCS for changes in ED length of stay (LOS); and % discharged to home was done. Additionally, we assessed Bridge Clinic patients for a year period for variation in their number of ED visits pre-vs. post-initial bridge clinic encounters.

Results: Comparison of 2017-2018 vs. 2018-2019 yielded a 7% increase in discharges ($p=0.004$). Mean ED LOS decreased by 45 minutes ($p=0.315$). When comparing patients' three months pre-versus post-initial bridge clinic encounters ($n=96$), the average ED visits decreased by 0.93 ± 0.16 (95% CI; $p < .001$).

Conclusion: After incorporation of PPCS, the percentage of discharges significantly increased, and ED LOS decreased. Patients in the Bridge clinic had a reduced ED presentation post intervention. We are hopeful that further implementation and resource allocation will improve the effectiveness of such services

Keywords: bridge clinic, emergency medicine, transitions clinic

Introduction:

This QI study took place in an 800+ bed Level I Trauma Center in the Mid-Atlantic. The hospital system had a Psychiatric Assessment and Triage (PAAT) team, a sub-department within the Department of Psychiatry, staffed with experienced psychiatric nurses, psychiatric social workers, and licensed counselors. It operates on a 24/7 basis with assessment and level of care determinations made on all voluntary patients coming into the healthcare system's six-hospital ED's. The ED and Psychiatry leadership noticed an increase in overall ED psychiatric patient volume over the past couple of years; and an increased number of patients needing boarding (waiting in the ED for > 24 hrs. for an inpatient bed) due to shortage of psychiatric inpatient beds throughout the state of Virginia. More needed to be done to improve psychiatry patient outcome measures in the ED's throughout this hospital system.

Pittsenbarger and Mannix³ report a 20% increase in Child psychiatric ED visits in the past ten years. Pfunter et al.² say that 5% of all child emergency visits were mental health concerns. Upsal et al.⁸ describes an initiative involving the placement of an interdisciplinary mental health team in the ED focused on the treatment of pediatric patients. The role of this team consisted of performing mental health evaluations, coordinating care, implementing behavioral interventions, and provision of psychoeducation to patients and their families. Their results showed a statistically significant decrease in mean LOS from 332 minutes to 244 minutes and median LOS

from 225 minutes to 204 minutes. They also had a statistically significant reduction in the use of physical interventions and restraints. Unfortunately, this team did not have a pediatric psychiatry consultant. Sheridan et al.⁶ describe a retrospective chart review of the addition of a half-time pediatric psychiatrist and social worker to the ED for evaluation, treatment, and disposition planning, which found a decrease in hospitalization rate from 42% to 24%. Sheridan's results suggest the addition of a dedicated pediatric psychiatrist to the ED for evaluation, treatment, and disposition planning could reduce extensive boarding times with an associated reduction in unnecessary patient hospitalizations.

The department of Psychiatry recruited a pediatric psychiatrist to develop a child & adolescent Psychiatry Consultation service in the ED. In a Plan/Do/Study/Act (PDSA) format, it became evident that the hospital system needed a safety net for a subset of psychiatric crisis patients. These patients would usually be boarding (waiting in the ED for an inpatient bed). However, they could be safely discharged home if they could get a higher level of outpatient care until complete stabilization. Strickler et al.⁷ described a change in workflow in which a blended care model was utilized, triaging patients to low acuity, high acuity, and urgent care. Romans et al.⁵ report the importance of the ED playing an essential role in identifying and linking patients to vital community services and resources to stabilize them in the community. This community did not have any partial hospitalization programs or intensive outpatient programs. However, there were some therapy-based crisis stabilization programs without psychiatrists on staff. As a result, a method of utilizing community resources and still providing a higher level of outpatient care in the community was to create a bridge clinic. Thus, "The Stable Bridge of Care clinic" was built with permission from the Psychiatry Department.

The purpose of this QA study was to evaluate the effectiveness of these two program interventions. First, the effect of having a pediatric psychiatrist consultant in the ED on the following outcome measures: ED Length of stay and ED discharge rates. The second aim was to assess the impact of the bridge clinic diversion program on decreasing ED presentations for patients in psychiatric crisis. Finally, the pilot intended to show a reduction in ED Psychiatry costs on the healthcare system and substantiate the need for a designated social worker for the Pediatric Psychiatry Consult service and the bridge clinic in facilitating transitions to outpatient care.

Methods:

In this hospital system, the ED physician evaluates all patient presentations to the Emergency Department, and they determine if the patient's presentation warrants medical or psychiatric assessment and treatment. Once the patient is medically stable, and their diagnosis is psychiatric, the PAAT team gets consulted. This team determines if the patient warrants inpatient or outpatient treatment and collaborates with the ED physician on final disposition. On rare occasions when the ED physician disagrees with their disposition plan, the ED Pediatric Psychiatrist is consulted. Other reasons for consulting the ED Pediatric Psychiatry Consultant were: if the patient's disposition was inpatient and had been waiting for an inpatient bed for > 24 hours (boarding status) or if the patient needed urgent medication management services.

The ED psychiatry consult service consisted of one child psychiatrist, who occasionally had psychiatry residents doing their inpatient rotation assist when the consult volumes were extremely high. The services provided were based on individual patient needs consisting of psychiatric evaluation, medication management, re-evaluation of disposition, behavioral health interventions (safety planning, crisis plan or behavioral plan), family meetings before discharge, and coordination of care (with the ED physician, inpatient or outpatient providers and therapeutic crisis programs in the community). If a patient was deemed appropriate for inpatient requiring med management services, medications were initiated pending the availability of inpatient beds. The patient was re-evaluated every 24 hours to determine if inpatient treatment was still necessary or if the patient could be discharged to a lower level of care in the community. Lower levels of care included: referral to a community psychotherapy crisis stabilization program, a bridge clinic appointment within 1-3 days of ED discharge, a follow-up appointment with their outpatient psychiatric provider within one week of ED discharge, intensive home-based therapy, day treatment programs, and school-based therapy programs. The time allocated to this Consult service was 3 hours in the morning on weekdays with evening follow-up to solidify discharge plans.

The Stable Bridge of Care clinic was an interim urgent care clinic created to rapidly stabilize pediatric patients with mental health concerns with medication management services and psychotherapy until the patient could establish with a long-term provider. Most of the referrals to the bridge clinic came from the ED and were placed by the PAAT team. The PAAT team had

access to this provider's outpatient schedule, and directly scheduled patients into the bridge clinic they had consulted in the ED, whom they felt could be stabilized urgently in the community within 1-3 days of ED presentation. They also scheduled some patients after crisis phone calls from other departments, diverting some patients from the ED completely. Thus, the bridge clinic served as an alternative to psychiatric boarding for inpatient hospitalization for a subset of patients and shifted some patients in crisis from the ED. It should be noted that collaboration with psychiatric providers in the community occurred before finalizing their ED disposition plan. The PAAT team scheduled bridge clinic appointments if their outpatient psychiatric provider could not see the patient within one week of ED discharge; or if their outpatient provider wanted bridge clinic stabilization before returning them to their outpatient clinic. Other referrals to the bridge clinic came from patients deemed at risk for destabilization- as step-down for the inpatient unit, from the pediatric developmental clinic, and the pediatric neurology clinic. Patients who had several crisis presentations before inpatient hospitalization and their outpatient psychiatry appointment was > 30 days away were temporarily bridged. The bridge clinic diverted some crisis patients from the ED when these specialty pediatric clinics contacted the PAAT team because these patients were in crisis. Patients received a bridge appointment within 1-3 days of the crisis call, and their parents were able to implement safety precautions at home.

The uniqueness of the Bridge program was its individualistic approach to each patient's needs. Some patients received one bridge clinic visit and effectively transitioned to another provider with an appropriate diagnosis and treatment plan. However, most patients needed at least 2-3 bridge clinic visits before effectively transitioning to other providers. The frequency of visits and interval between visits were tailored to each patient's individual needs. A majority of the patients seen in the bridge clinic successfully transitioned to other providers in the community within 1-5 visits. A small subset of patients could not be effectively transitioned off the bridge clinic after five visits; and stayed on longer as outpatients due to primarily psychosocial difficulties resulting in frequent crisis presentations.

In April 2018, this study was submitted to Carilion Clinic Institutional Board Review (IRB), who reviewed and approved it as a Quality Improvement Project. At that time, both the Pediatric Psychiatric consult service to the ED and the Bridge of Care Clinic was fully functioning. Two separate sets of data were pooled from Epic Electronic Health records software of the program interventions. First, an Epic data pool of all patients who presented to the ED with mental health

concerns was done one-year pre & post-Pediatric Psychiatry consultant intervention. Those included in the study were ages 4 to 17, English or Spanish speaking, presenting with mental health concerns without regard for insurance status or parental/ family or CPS custody status. Exclusion criteria were ED presentations for non-psychiatric reasons and ages <4 or >18.

Secondly, the bridge clinic epic data was collected by doing a retroactive chart review of all outpatients seen by the PI from August 2017 to April 2019, with a total of 384 patients. Bridge clinic inclusion criteria: Patients scheduled by the PAAT team & seen in the bridge clinic between 4/2018 and 4/2019 (96 patients). Bridge clinic exclusion criteria: Patients referred by their PCP and seen by the psychiatry outpatient service (198 patients). Patients whose last contact with the PI was before 4/1/2018 were removed (33 patients). This is because the PI worked in several sites (inpatient, ED consults & bridge service), and neither program was functional at optimal capacity. In addition, patients whose data were entered twice because they came in with different guarantors during alternating visits were removed (32 patients).

Statistical Analysis:

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0 software. Categorical variables were presented as frequencies and percentages. Continuous variables were summarized using mean and their standard deviation. A Chi-square test was employed in measuring the relationship between categorical variables. The Wilcoxon rank sign test was computed to establish the relationship between matched categorical variables. Mean differences between categories were explored using the T-test of independence. Statistical significance was set at a p-value of less than 0.05.

Results:

Percentage Discharge from Emergency Department

The percentage of discharges of pediatric patients with mental health ED presentations was highest post creation of the Pediatric Psychiatry Consult Service for May 2018, November 2018,

and February 2019 compared to the year prior creation of these programs. The average discharge rates increased from 40% before initiation of the ED Pediatric Psychiatry Consult service to 47% post its design, indicating a 7% increase in discharge rate ($p=0.04$) (Figure 1).

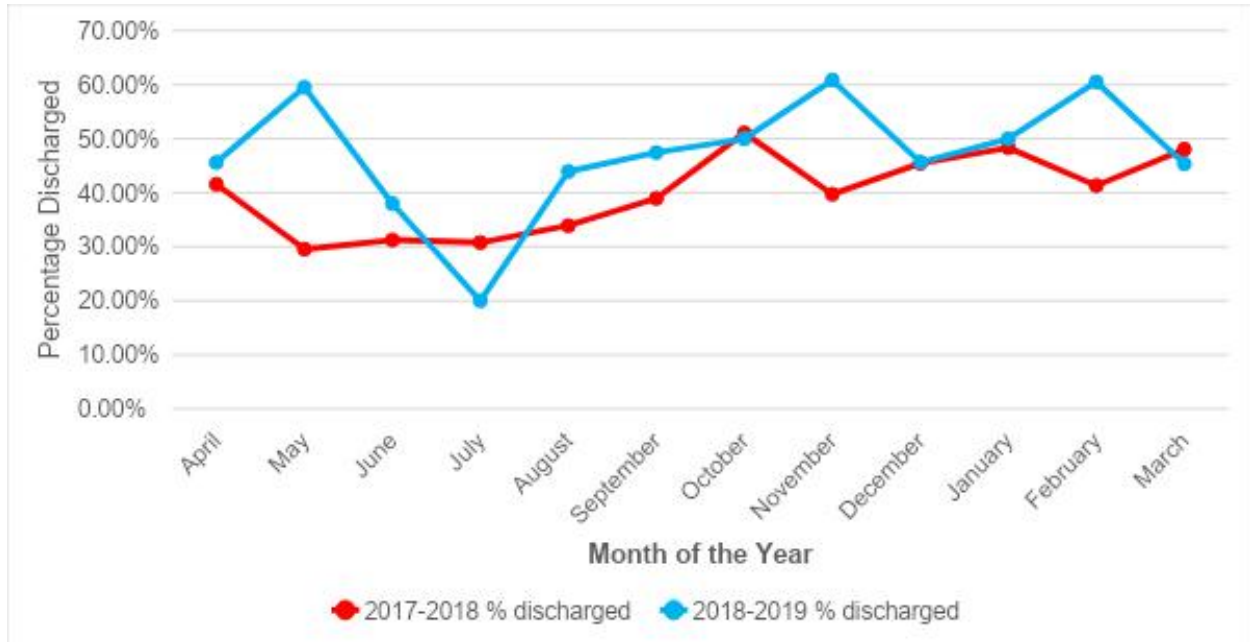


Figure 1: Percent of Patients Discharged to Home before (2017-2018) versus during the presence of ED psychiatry consultant (2018-2019)

Length of Stay at Emergency Department

The average LOS in the ED decreased from 833 minutes before the ED Pediatric Psychiatry Consult service to 788 minutes, indicating a decrease in LOS by 45 minutes ($p=0.754$) (Figure 2).

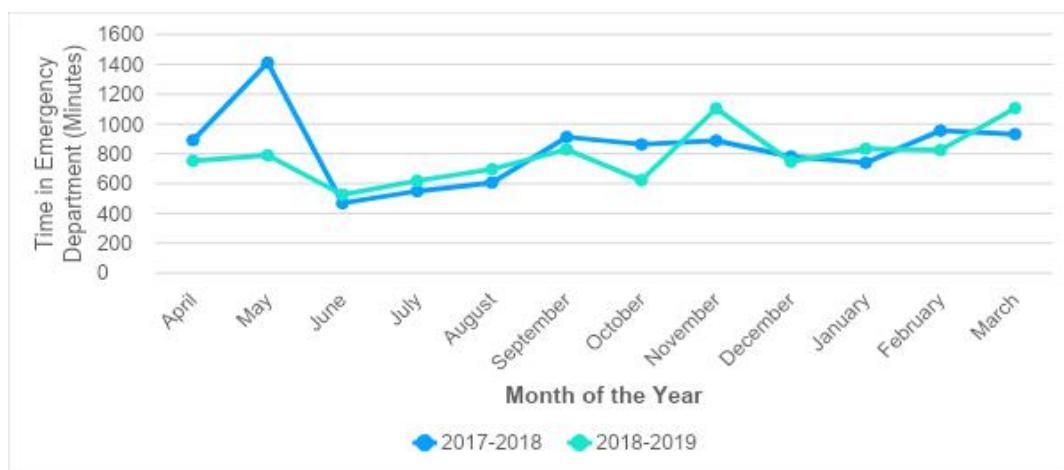


Figure 2: Time spent in ED before discharge during 2017-2018 versus during the presence of ED psychiatry consultant (2018-2019)

Comparison of Bridge Clinic vs. Regular Outpatients patient demographics, seen by this provider in the same period:

Table 1 presents the total number of 294 patients the PI saw in both outpatient and bridge clinics between April 2018 and April 2019. Again, there was a slight variation in gender between the two populations. Most, 163 (55.4%) of the patients were in their middle childhood ages (6 to 11 years), being higher in the outpatient encounter than in the bridge program (p=0.004).

Table 1:

Parameter		Type of Encounter			Statistics	
		Bridge No(%)	Outpatient No(%)	Total No(%)	Chi square	P-value
Sex	Female	55(57.3)	92(46.5)	147(50.0)	3.032	0.082
	Male	41(42.7)	106(53.5)	147(50.0)		
	Total	96(100.0)	198(100.0)	294(100.0)		
Age	Mean±SD	11.6±3.9	12.6±3.5	12.3±3.7*	11.019	0.004
	<6 years	11(11.5)	5(2.5)	16(5.4)		
	6-11 years	46(47.9)	117(59.1)	163(55.4)		
	12-19 years	39(40.6)	76(38.4)	115(39.1)		
	Total	96(100.0)	198(100.0)	294(100.0)		

SD=Standard deviation, *Student t-test=2.388 (p=0.018)

Categorization of Patients seen in the bridge clinic:

Of the 294 patients, the majority [194(67.3%)] were outpatients (OP) referred by their PCP and accepted to the psychiatry outpatient service. Ninety-six (32.7%) of the patients were followed up in the bridge clinic, and their referral sources are shown in Figure 3. Among the bridge patients, 77(80.2%) were stabilized, while 19(19.8%) presented with long-term crises defined as any patient seen > 5 times. (Figure 3).

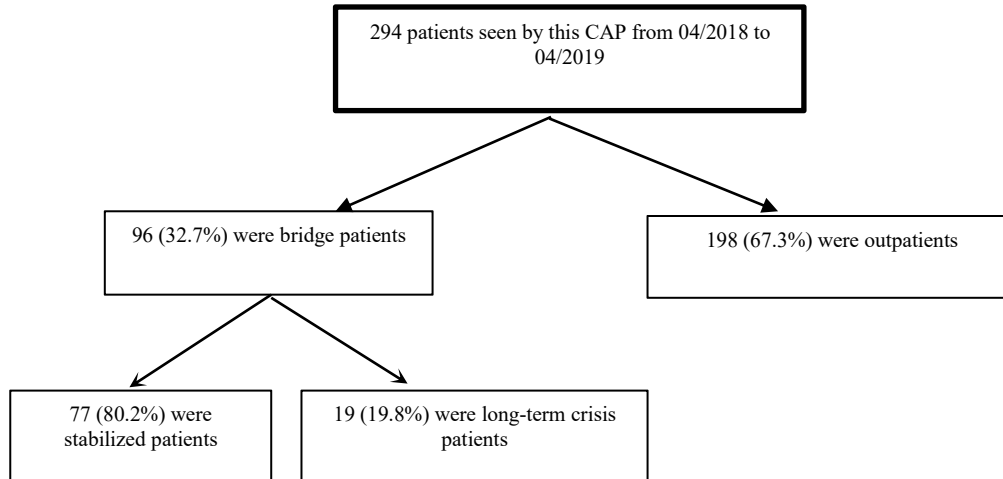


Figure 3: Patients attended by the CAP at Bridge/Outpatient

Bridge Clinic referral sources:

The majority, 65(67.7%), of the patients in the bridge clinic were referred by the PAAT team from the emergency department. The inpatient units also contributed 24(25.0%) of the patients for the bridge clinic (Figure 3).

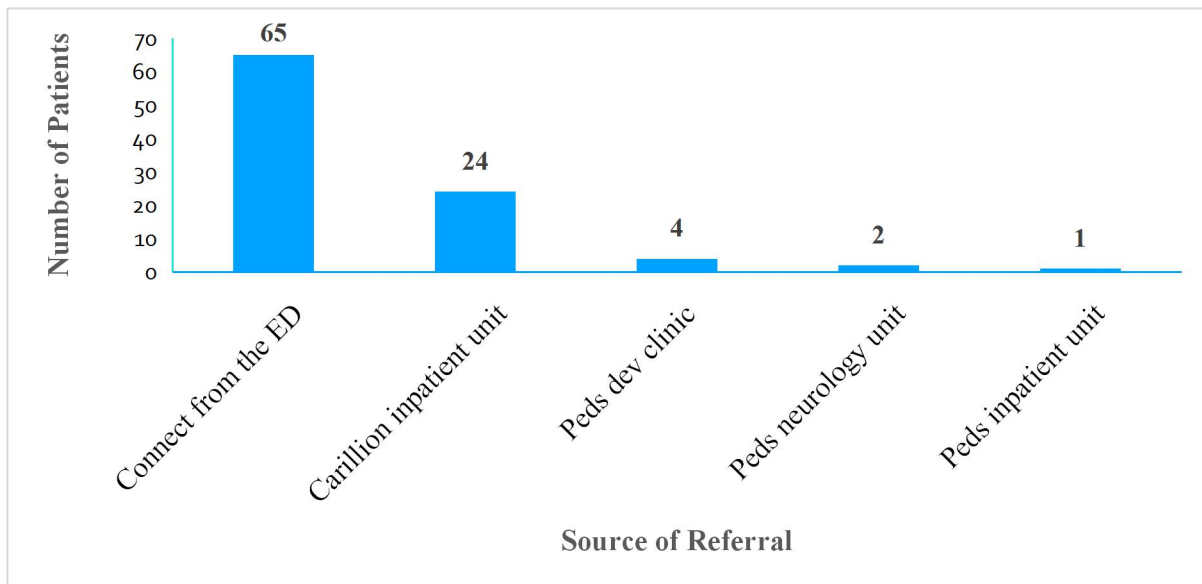
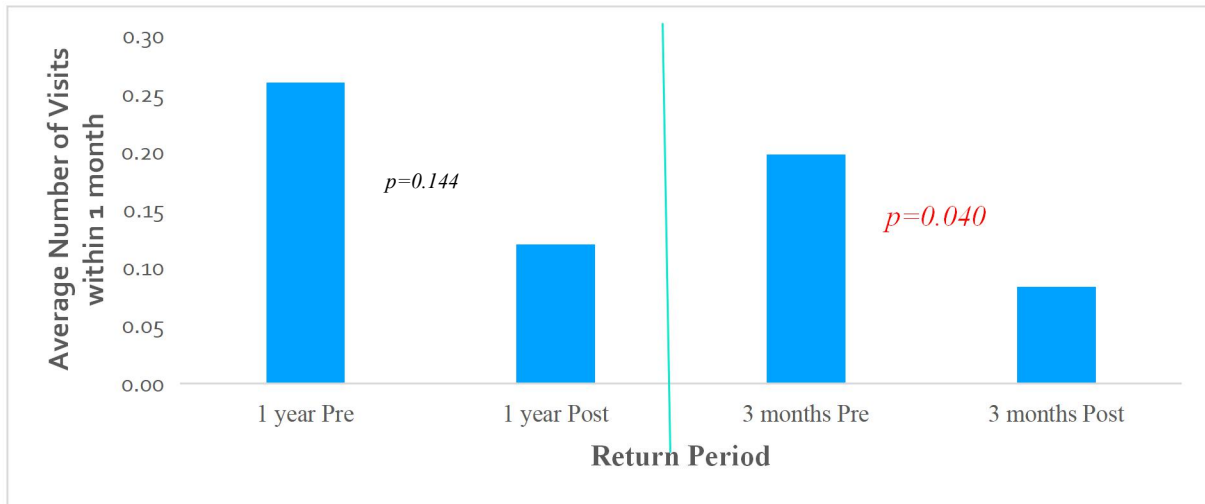


Figure 4: Sources of referral of patients to the bridge clinic between 4/2018 and 4/2019

Average Return Visits to the ED within One Month

There was an insignificant decrease in the ED return visits one year after bridge clinic encounter ($p=0.144$). However, the average number of return visits to the ED within one month witnessed a significant decrease over three months of post bridge encounters compared to the three months before the bridge clinic encounter ($p=0.040$) (Figure 5).



Wilcoxon rank sign test

Figure 5: Average Return Visits within one month during 2017-2018 versus 2018-2019

Average Return Visits to the ED within One Week

The average number of return visits to the ED within one week witnessed an insignificant decrease at three months ($p= 0.763$) and one-year post-bridge clinic encounter ($p=0.705$) compared to the three months before bridge clinic development. (Figure 6).

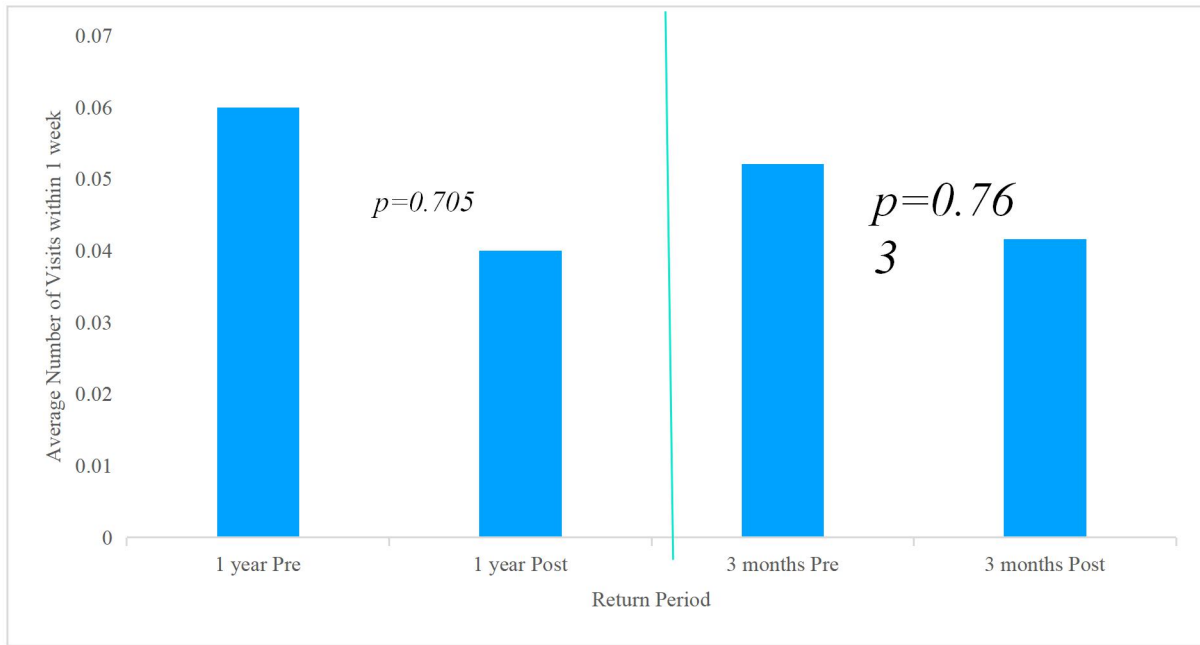


Figure 6: Average Return Visits within one week during 2017-2018 versus 2018-2019

Discussion:

This QA study had three significant findings. First, a child and adolescent psychiatrist working in the ED improves the quality of patient care of patients with mental health presentations by facilitating transfer into active treatment and away from boarding. This was accomplished by decreasing patient LOS and increasing ED discharge rates to appropriate community resources. In this study, the LOS was reduced by 45 minutes and the ED discharge rate increased by 7%. Secondly, by their fellowship training, pediatric psychiatrists should be very knowledgeable of the appropriate levels of psychiatric care in community settings. They can effectively determine what levels of care other than inpatient hospitalization could be utilized to stabilize patients with pediatric psychiatry crisis presentations. Some examples of intermediate levels of care in the community are crisis stabilization programs, Intensive Outpatient Programs, Partial Hospitalizations Programs, home services, school-based services, and subspecialty transitions/bridge clinics. More effective triage and utilization of these levels of care within the community can effectively decrease the psychiatric boarding crisis by diverting patients from the ED, thus avoiding unnecessary and costly hospitalizations. A child and adolescent psychiatry consultation to the ED enable initiation of a treatment plan, including guidance on indicated therapeutic

interventions and medication changes. Coordination of care with appropriate community subspecialty clinics like the stable bridge of care clinic and other transition clinics lead to more effective community stabilization of patients in crisis. Thirdly, utilizing the medical model of care in psychiatric EDs (creating a shift from just evaluation and triage to a provision of treatment) would lead to more effectively used boarding time when combined with ancillary therapy services.

The primary goal of this QA study was to determine if the presence of a child and adolescent psychiatrist in the pediatric ED improves patient care by evaluating patient outcome measures. Our results illustrate that creating a pediatric consult service to the ED decreases patient LOS and increases discharge rates. The most common intermediate levels of care utilized in this community were: therapeutic crisis programs, intensive Home-based treatment programs, and intensive ABA therapy programs. In addition, other lower-level intensive therapy referrals were made, such as play therapy referrals, individual therapy referrals, school-based therapy referrals, and recommendations that parents file a Chins petition with the court system.

The second goal of this QA study was to determine if the addition of a subspecialty clinic, The Stable Bridge of Care clinic, further improved patient outcome measures. At the time of these programs, this system of care did not have a PHP or IOP, and there were none available in the community. Our results demonstrate that adding a Bridge clinic to this hospital system was immensely beneficial in several ways. First, a considerable percentage of referrals came from the ED, diverting patients boarding in the ED and serving as a safety net to continue crisis stabilization until an appropriate transfer of care to a long-term care provider could be established. Second, the Bridge Clinic also served as a step up in care from a standard outpatient appointment and a step-down site for hospitalized patients to offer mid-range support. This newly established level of care effectively served to reduce the use of the ED for that level of support. The bridge clinic provided individually catered intensive therapy, medication management, and crisis stabilization services, then transitioned the patients back to their PCP, APNs, or the referring physician for ongoing continuation of treatment.

Ribbers et al. ⁴ describe the Crisis and Transition Services (CATS) model in Oregon, a transition program similar to the Stable Bridge of Care Clinic described in this article. Both programs provide short-term crisis stabilization of patients referred from the ED. Unlike the CATS

program, which places patients on a 15–60-day track towards stabilization, the Stable Bridge of Care did not have a timeline, as an individualistic approach to treatment was utilized for patients' stabilization. Additionally, the Stable Bridge of Care did not have the assistance of support staff working on coordination of care between various agencies. Nonetheless, positive outcomes were realized. The addition of ancillary support staff may have generated more robust results. A considerable part of this QA study was to advocate for more resource allocation by this institution to support the growth of the Pediatric psychiatric consult service and the stable bridge of care Clinic. Of note were the results of demographic data indicating that elementary school-age children presented more frequently in need of crisis services within the community vs inpatient hospitalization. These results point to a need for more intensive services for children ages 6-11 years old and have implications for mental health services provided in schools.

There were several limitations to the program interventions in this QA study. First, this provider had to go back and forth to the bridge clinic and the ED several times per day, which factored into the patient's LOS. For example, if a patient needed a safety plan before discharge and the provider had a bridge patient appointment, that took precedence over the patient in the ED. The provider only returned to complete safety planning for the ED patient after seeing bridge clinic patients. Secondly, no social worker or additional support staff were dedicated to the Pediatric Psychiatry consult service or bridge clinic. This gap was filled by the provider, which was an inefficient use of highly skilled provider time. Generalizability is limited due to the use of only one provider and the lack of a systematic protocol for the provision of services. Finally, there is the possibility of confirmation bias as this provider is evaluating her work.

Conclusion/ implications for practice:

Creating a pediatric psychiatric consult service within an Emergency Department improves the following patient outcome measures: decreases LOS, increases ED discharge rates, leads to better triage and treatment of patients with psychiatric presentations to ED's; results in a reduction of boarding time and better utilization of boarding time. Developing a subspecialty bridge/transitions clinic diverts a subset of patients from boarding status to the outpatient setting for crisis stabilization, thus avoiding unnecessary hospitalization. A bridge clinic also creates a hospital system diversion for patients in crisis who can be stabilized in the community setting.

The use of the medical model to begin therapeutic interventions and medication adjustments while still in the ED improves patient care quality. Overall, the presence of child psychiatrists in the ED leads to better triage of pediatric patients, treatment, and appropriate disposition of patients, compared to not having a pediatric psychiatrist in the ED. The addition of ancillary mental health support staff could assist with proper referrals of patients to community mental health resources, and collaboration of care with outpatient providers and be a cost-effective addition to an ED psychiatric team.

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