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Improving Quality and Efficiency in Pediatric Emergency Department Behavioral Health Care

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Introduction: Many children with behavioral health concerns increasingly utilize the emergency department for assessment and care. These visits are increasing in frequency, length, and cost, further stressing already limited resources. To improve the quality of care in this population, we developed a multidisciplinary improvement initiative to decrease the length of stay by 10% (from 5.2 hours), increase suicide screening to 90%, and improve patient and family experience by 10% (from 89.7).**Methods:** We leveraged a multidisciplinary team to map care processes, standardize suicide risk screening, optimize staffing, and develop a brochure to demystify patients' and families' visits. We developed dashboards and a call-back system following discharge to understand engagement in post-acute care plans. We utilized run charts to identify signals of nonrandom variation. **Results:** We reduced overall length of stay from 5.2 to 4 hours, improved patient experience scores from 89.7 to 93.2, and increased the suicidality screening rate from 0% to 94%. There was no change in the 72-hour return rate in this population. **Conclusions:** Engagement of a multidisciplinary team, with strategic implementation of improvements, measurably improved many aspects of care for pediatric patients with behavioral health crises in the emergency department setting. Recidivism, however, remains unchanged in this population and continues as a goal for future work. *(Pediatr Qual Saf 2022;7:e530; doi: 10.1097/pq9.0000000000000530; Published online January 21, 2022.)*

INTRODUCTION

Problem Description

Before initiating this work, our pediatric emergency department (ED) observed significant trends in our behavioral health year-over-year data. Between the fiscal year 2014 and fiscal year 2018, annual behavioral health visits increased from 1,652 to 1,790 (8.4% increase). This rise was associated with a 36.4% increase in time from arrival to provider assessment (11–15 minutes) and a 102.7% increase in the time from ED arrival to patient admission (337–683 minutes). Moreover, a large number of patient visits, many requiring significant resource utilization, were patients who had returned for care within 72 hours of discharge from a prior ED evaluation. These inefficiencies negatively impact the ability to provide patient-centered care to those experiencing a behavioral health crisis and may require additional resources, affecting the care of other patients related to prolonged room occupancy and higher staff-to-patient ratios.

Available Knowledge

The percentage of pediatric ED visits for a primary behavioral health concern has doubled in the last decade, along with increasing per visit costs.[1,2] Compared to a 13% increase in visits for other indications, pediatric ED visits for behavioral health increased by 45%, accompanied by a median cost per visit increase of $38 per quarter.[1] Children seen in the ED setting for behavioral health concerns require significant resource utilization, including consultation, restraint, laboratory testing, and prolonged bed usage.[3,4] Patients with comorbid autism or intellectual disability or those with suicidality may require more complex care and incur an increased ED length of stay (LOS).[5] Repeat visits in this population are common.[6] Return visits for behavioral care in the ED setting may also stress ED resource availability. Patients with past psychiatric history or prior psychiatric hospitalization are more likely to demonstrate dangerous behaviors.[7]

Rationale

The use of dedicated, trained staff to manage behavioral health evaluations in the ED setting has is associated with decreased LOS and recidivism.[8] Although our ED was employing dedicated behavioral health

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navigators, we found staffing coverage and schedule refinement was required to ensure uniform time to patient care. Although behavioral health patients are at high risk for return visits in addition to prolonged LOS, other methods to specifically reduce this recidivism are less clear.[9]

Additionally, identification of high-risk patients was an unexplored opportunity in our setting, and one where the Columbia Suicide Severity Rating Scale (C-SSRS) has demonstrated efficacy without significant impact on LOS.[10] Identifying high-risk patients at the onset of care, coupled with clarity of a risk-stratified workup approach, may impact outcomes.

Finally, it is important to engage the family in caring for a child in behavioral health crisis. Children are typically accompanied by a caregiver during their ED evaluation, and often rely on this person to manage postdischarge care.[11,12] Applying tenets of the American Academy of Pediatrics's Family-Centered Care, we identified multiple areas for improvement related to the provision of information to families, collaboration with other healthcare professionals, and enhancement of knowledge regarding patient and family experience during the care and postdischarge periods.[13]

Specific Aims

As a part of a comprehensive initiative entitled RAPPED UP: Reducing Avoidable Pediatric Psychiatric Emergency Department Use Project, we initially developed aims around improving the process of care for patients presenting with behavioral health needs. These aims included implementation of suicide screening, to screen 90% of patients with a behavioral health chief complaint, reducing LOS for this population by 10% from a baseline of 5.2 hours, and improving patient experience scores by 10% from a baseline score of 89.7. We feel that improving efficiency in these areas will assist with our understanding of the primary drivers of recidivism in this population. Ultimately, we aim to reduce 72-hour revisit rates by 10% from a baseline of 3.7%.

METHODS

Context

This project was carried out in the ED of an urban, tertiary care children's hospital. The ED treated 36,669 children in 2018, including 1,790 children under 16 years of age presenting with a primary behavioral health chief complaint. In our setting, the adult crisis intervention psychiatric team sees patients 16 years of age or older. Patients under 16 are cleared medically by the primary ED team and then evaluated by a social worker with behavioral health assessment training and child psychiatrist supervision. At the onset of this work, no validated tool was utilized for risk stratification. No formal follow-up system was in place.

Interventions

Upon initiating this work, we gathered a dedicated, multidisciplinary team to plan the project. This included ED physician leadership, ED nurse leadership, children's hospital quality improvement leadership, social work, child psychiatry, and milieu counselors. We reviewed current data and patient/family feedback for context and created a dashboard for easy access. Concerning our key driver diagram (Fig. 1), interventions were conceptually mapped to the outcome of interest, with secondary metrics identified to understand improvement phases.

First, we aimed to understand the behavioral health visit process in the ED. We created a process map (Fig. 2) to gain consensus and aid in future staff education. From expert feedback within our workgroup, we identified a paucity of provider knowledge of community resources for behavioral health care. Leveraging our social work teammates' expertise, we created a resource list for local care options and disseminated it both by email and posted it within the electronic health record (EHR). Once this resource list was developed, we partnered with our psychiatry teammates to create a process by which low-risk patients, identified through expert consensus and who met specific a low-risk profile, and might be discharged with community resources in place and bypass formal behavioral health consultation. This process was provided to the ED staff electronically and reinforced through periodic staff meetings.

Following a thorough, team-based review of suicidality screening options, we identified the C-SSRS as ideal in its test characteristics and brevity. This tool was then built into our EHR for use at triage to identify high-risk (suicidal) patients at arrival. This was added to the process map to facilitate quick and accurate decision-making about immediate care needs upon initial patient assessment. Additionally, this improved standardization of suicidality screening and reduced the risk that suicidal ideation and plan would be missed, lead to incomplete ED care, and require revisit. Significantly, we added these screening results as an icon on our tracking board to ensure that all staff were aware of the highest risk patients on the unit, and resources could be allocated accordingly. At the onset of our project, the C-SSRS was not validated in patients under age 12; therefore, in younger patients, we asked simple, targeted questions about suicidality to stratify immediate risk.

Next, we addressed staffing needs. We prioritized hiring into open social work and milieu counselor roles to ensure broad and uniform coverage of our behavioral health services. One and one half full-time milieu counselor equivalents were added, and social work schedules were readjusted for optimal coverage and open roles filled without additional positions added. Once fully staffed, we utilized these individuals during work times with lower acuity or patient volume to call all discharged patients following behavioral health ED visits. Callers were provided a script to determine challenges in follow-up care, unanswered questions, and reinforce safety plans.

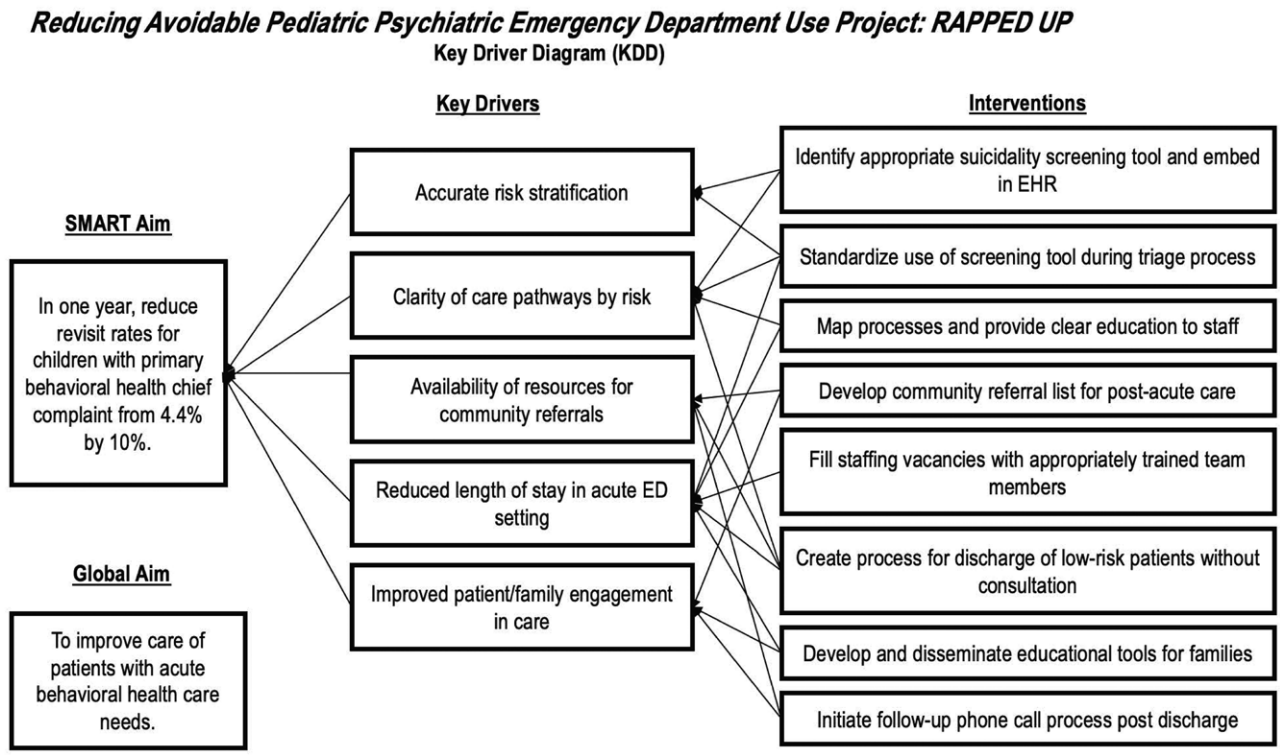

Fig. 1. Key driver diagram.

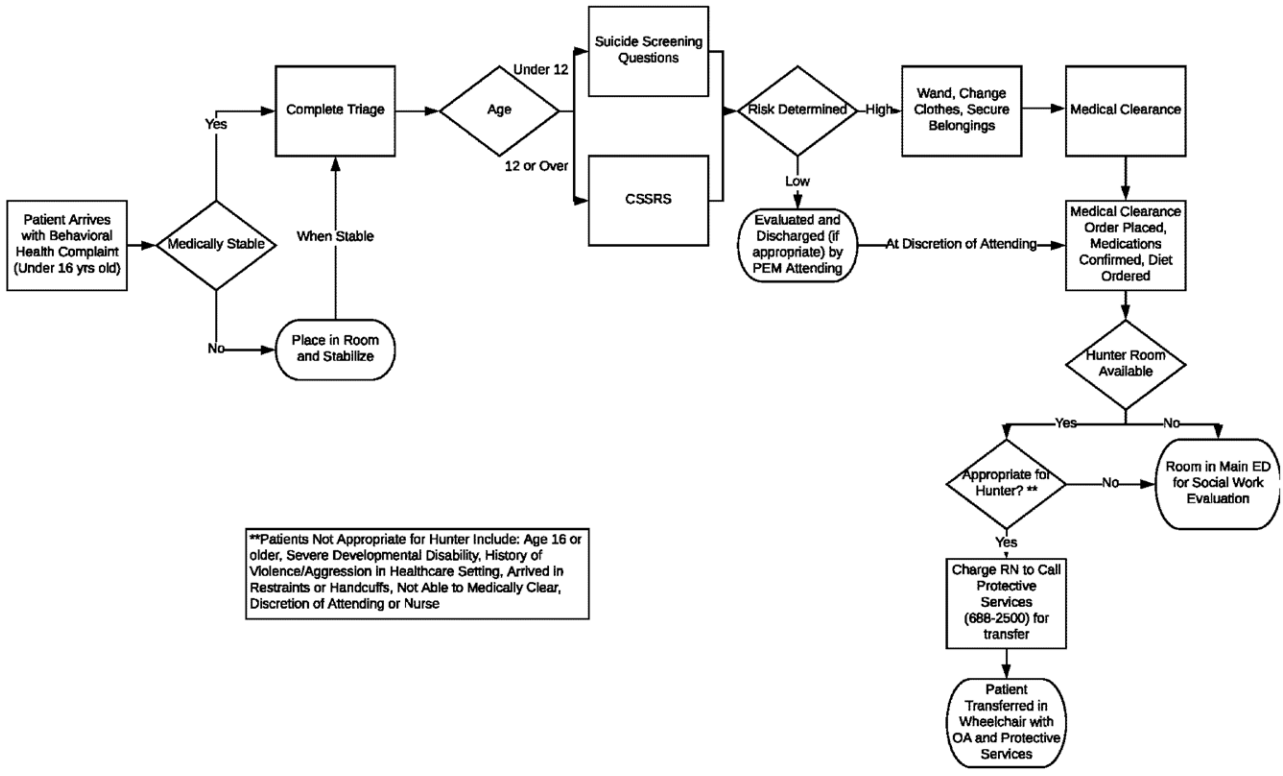

Fig. 2. Process map. **Patients not appropriate for human include: age 16 or older, severe developmental disability, history of violence/aggression in healthcare setting, arrived in restrained or handcuffs, not able to medically clear, and discretion of attending or nurse.

Plan-do-study-act cycles occurred concurrently with operational work to enhance family comfort and engagement with the process. Five beds were allocated in a less busy area of the ED to allow for a more private and quieter space to perform an evaluation. A brochure was developed in conjunction with social work and patient relations that outlined the behavioral health evaluation process for families. We identified additional mindfulness activities, including yoga and outdoor recreational play options, when available, to aid in developing a supportive and therapeutic milieu for patients and their families.

Study of the Interventions

This work follows the SQUIRE 2.0 reporting guidelines.[14] To understand the impact of our interventions on our outcome metrics, we applied quality improvement methodologies, including plan-do-study-act cycles. We evaluated data for signals of nonrandom change using standard run chart rules (shift, trend, number of runs, or astronomical data points).[15]

Measures

Our outcome metrics included the treat and release LOS (from arrival at ED triage to ED discharge), percent of patients with primary behavioral health chief complaint who had a C-SSRS screen completed, and patient experience scores as a behavioral health population average from Press Ganey. A secondary measure for this work was the percent of ED visits attributable to patients with a primary behavioral health chief complaint who returned within 72 hours of ED discharge. We selected 72-hour returns rather than a longer period of time to preferentially include patients within the same crisis period, rather than a secondary issue that might develop weeks later. All aims were identified a priori, and a 10% goal was identified as both measurable and significant improvement in each.

Analysis

Data were aggregated utilizing EHR data on a monthly basis. Data were tracked on run charts for reviewing quality improvement, utilizing QI Macros for Excel (KnowWare International, Inc., Denver, Colo.), signals for nonrandom change using standard shift rules, and recalculation of the measure of central tendency.[15]

Ethical Considerations

No specific high-risk ethical concerns were identified in the completion of this project. Per local guidelines, this work met criteria for quality improvement and was not reviewed by Institutional Review Board.

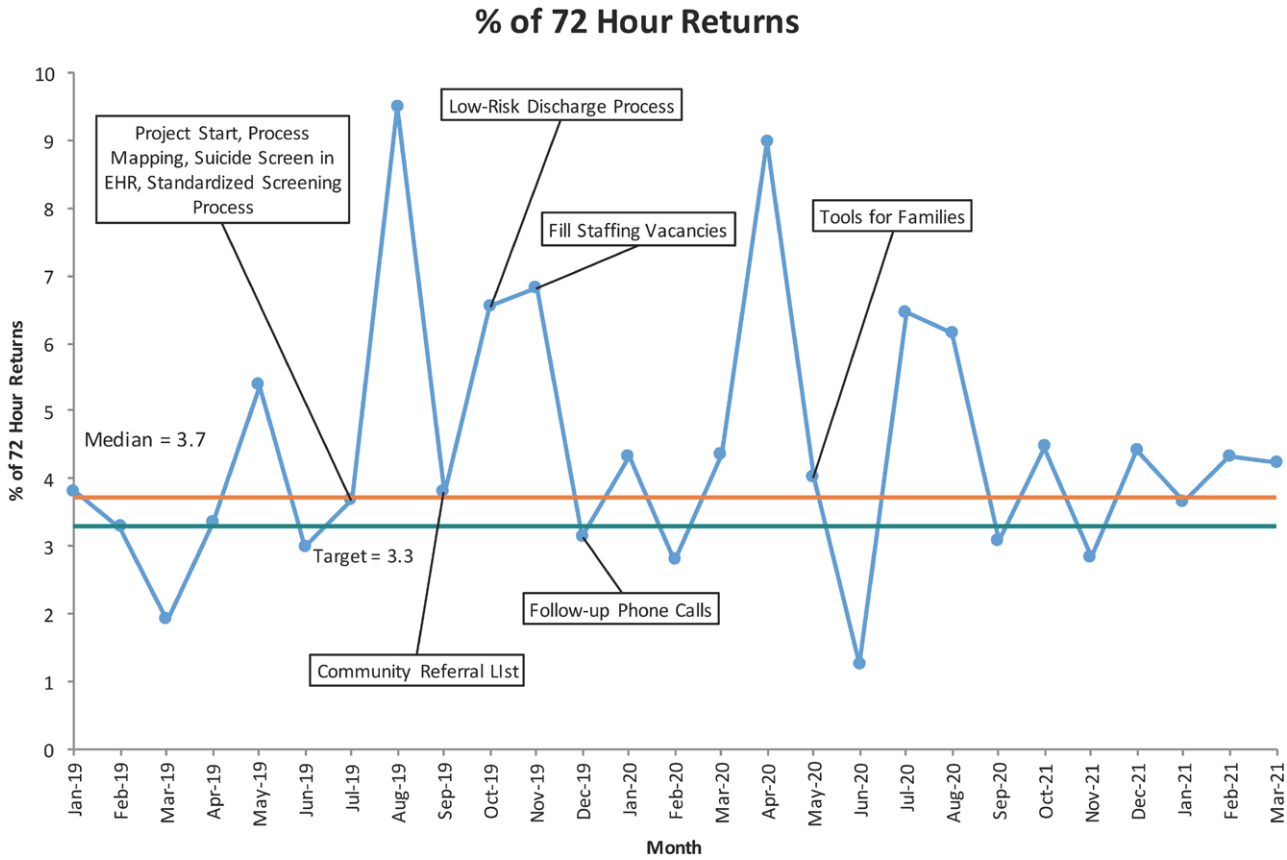

Fig. 3. Percent of return visits within 72 hours.

RESULTS

The project began in July 2019, with project work completed through July 2020, and data regarding sustainability through March 2021. During this time, there were on average 114 behavioral health visits per month, with 72 discharged patients per month. We did not identify nonrandom variation in our RAPPED UP overall recidivism metric (Fig. 3), as 72-hour return visits remained at 3.7%. Following the implementation of our screening processes, we identified signals of nonrandom improvement in

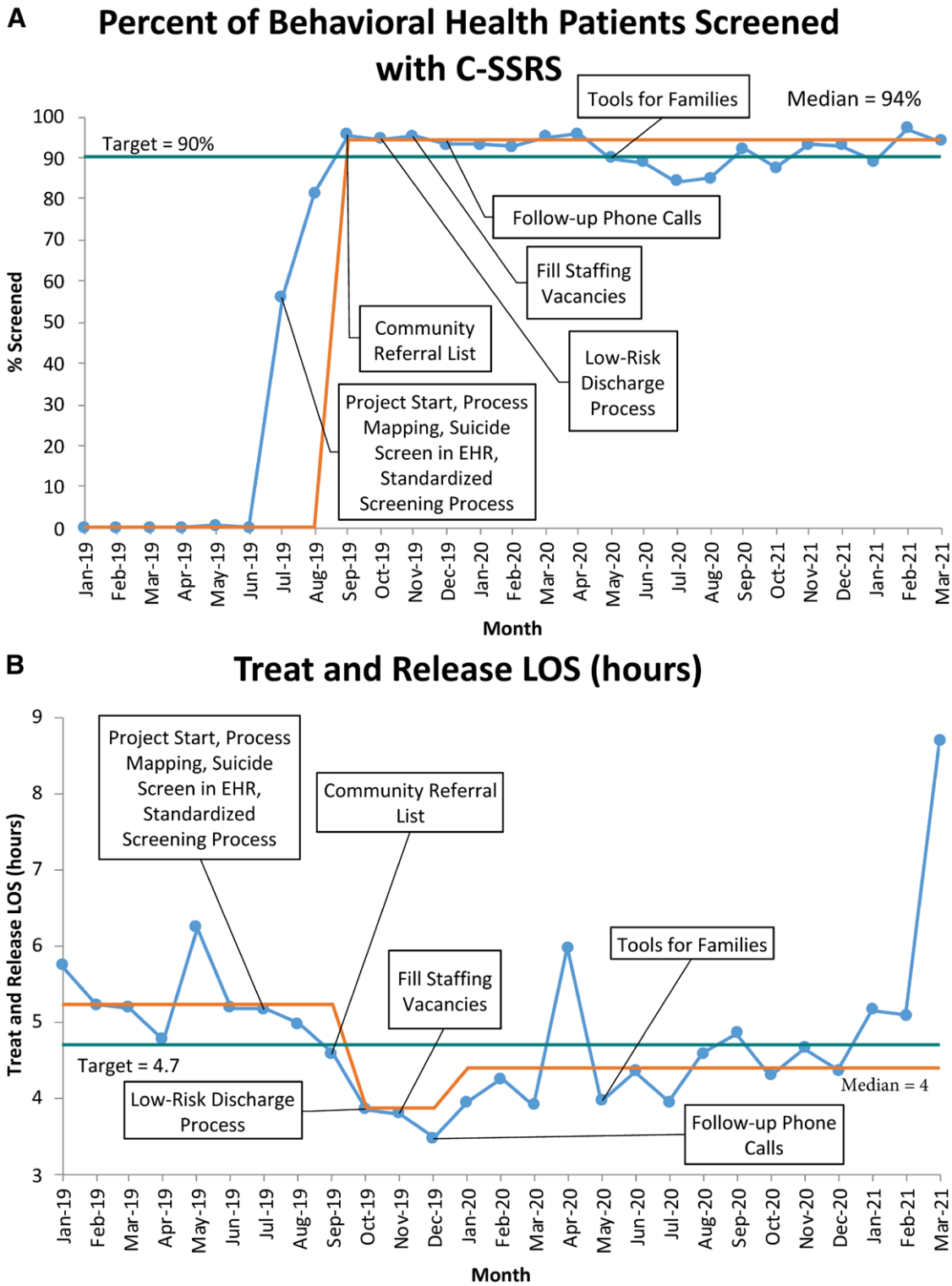

Fig. 4. Primary measures. A, Percent of behavioral health patients screened with C-SSRS.[22] B, Treat and release LOS. C, Patient experience scores.

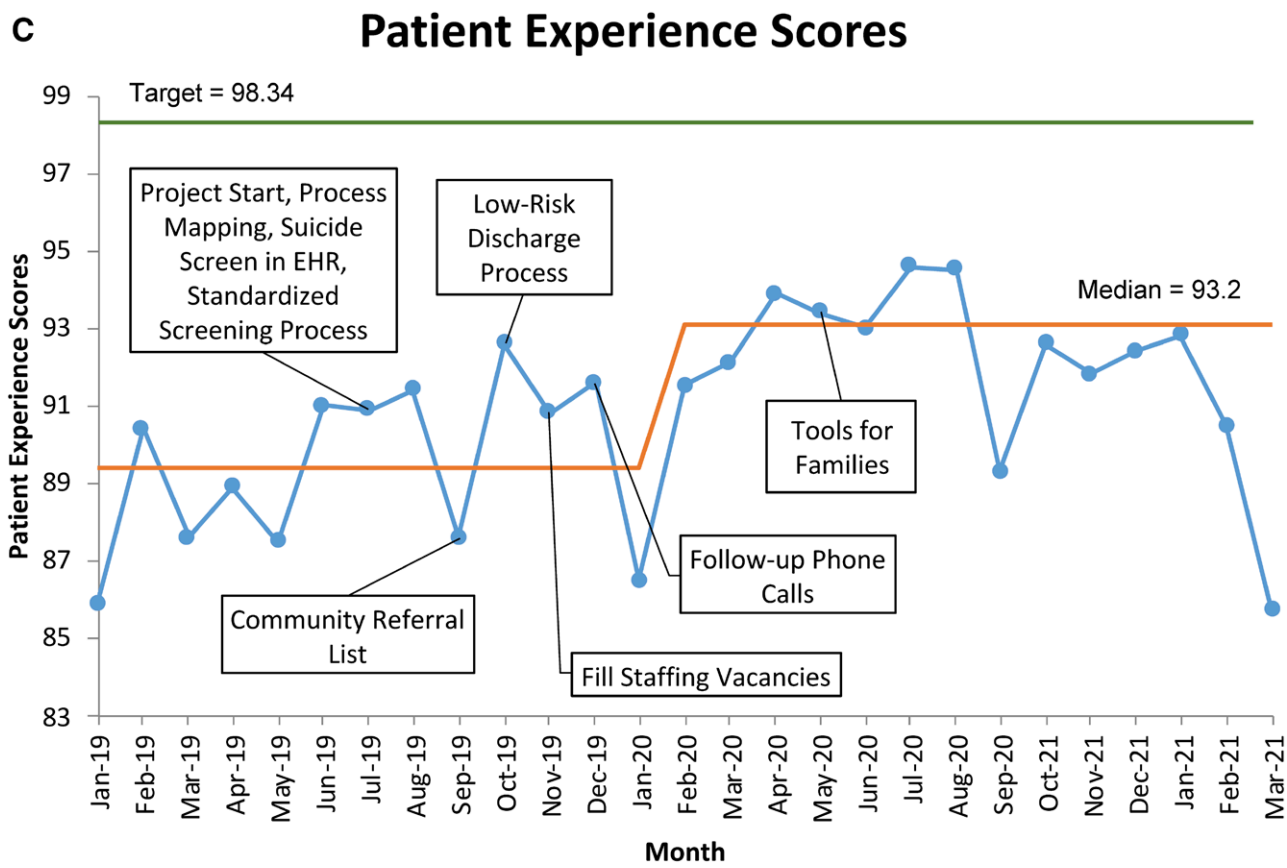

Fig. 4. (Continued).

suicidality screening of behavioral health patients from 0% to 94% in September 2019 (Fig. 4A). This surpassed our goal of 90%. Similarly, we identified signals of nonrandom change for a reduction in treat and release LOS from 5.2 hours initially to 3.9 hours, and then settling in January 2020 at 4 hours and sustained (Fig. 4B). Nonrandom variation in patient experience scores was identified in February 2020, with an increase from 89.7 to 93.2 A significant surge in patient volume was observed in the final month (225 arrivals), which was associated with a sudden rise in LOS and decrease in patient experience.

DISCUSSION

Summary

In summary, we observed a reduction in our overall LOS from 5.2 to 4 hours, an increase in patient experience scores from 89.7 to 93.2, and our suicidality screening rate from 0% to 94%. Despite demonstrating improvement in many of these important drivers of recidivism, we could not show measurable improvement in our return visit rates. This suggests the complex nature of this work and informs future improvement efforts in the ED setting.

Interpretation

This project demonstrates many of the challenges implicit in addressing recidivism, particularly in the behavioral health population. Although precise details around return to care visits in behavioral health are limited, some data exist around this phenomenon in the ED. Younger patients, off-hours visits, higher acuity, and chronic conditions may predict return visits.[16–18] Data in medical return visits suggest that patients may return because of disease progression, lack of contact with outpatient providers, or inability to schedule subsequent care.[19,20] Regardless, it is evident that the ED provides a necessary safety valve when these outpatient care plans fail.[20] As we move into the next phases of work in this population, additional drivers, including these patient-centered variables will be essential to evaluate. Given the heterogeneity of this population, a one-size-fits-all improvement approach may not be sufficient, and catering to the patient's individual needs may be most effective.

In this project, measurement of success of some of our key drivers was essential to understand steps toward progress. Although we improved the risk stratification, efficiency, and patient/family centeredness of the behavioral health care we provided, this did not drive the change in subsequent return for care. There remains a possibility of leveraging the information from the follow-up phone calls to families to understand barriers to completing care plans in the outpatient setting. For example, families have identified stress around understanding what an ED visit may include and preparing their child appropriately.

Therefore, we are developing and finalizing a video for families to prepare for and understand the behavioral health ED visit. Also, specific subsets of patients within behavioral health diagnostic groups have increased risk for return to care, including those with mood/psychotic disorders and those with higher triage acuity.[21] Targeted case management focusing on these populations may be an important future direction for consideration.

Of note, a significant increase in LOS and associated decrease in patient experience scores is demonstrated in the final month displayed (Fig. 4B and C). We experienced both a surge in volume and acuity of patients seeking behavioral health care in that month. Like many other institutions, our inpatient services were filled, and our emergency providers' workflows were saturated. These changes, likely associated with the COVID-19 pandemic and the behavioral health crisis that has accompanied it, have further demonstrated the need for additional attention and resources dedicated to serving this population in need. We also continue to try to accurately define "high-quality" care in this patient population, especially given the rapid changes occurring during this pandemic-associated behavioral health crisis. A scarcity of available benchmarking data specific to this population in this setting makes this work iterative and suggests a strong need for inter-facility collaboration going forward.

Limitations

This project was carried out only in a single ED setting, with particular contextual specifics that may limit its generalizability. Also, we only included patients under the age of 16 due to local care pathways while understanding that the behavioral health care of adolescents reaching adulthood is also important and complex. We did not include admitted psychiatric patients in our improvement work and looked only at those whose care experience was attained completely within the ED and by our singular team. Related to the recidivism metric, we evaluated only returns to our ED within 72 hours, and not those more remote from the initial visit or to another ED. A potential balancing measure includes a reduction in efficiency in the care of medical patients due to the deployment of resources to behavioral health patients. Still, we were unable to measure this impact precisely in our available data sets. Similarly, although other balancing measures related to reduced LOS in behavioral health patients are possible aside from increased return rates, this work could not formally evaluate these.

CONCLUSIONS

Although our team successfully improved many markers of quality of care in this population, we could not measurably impact recidivism among pediatric ED patients with behavioral health crisis. We believe that suicidality screening, patient/family experience, and LOS play into the primary metric, but additional work remains to understand and modify other components of return to care. We look forward to additional opportunities to develop and implement further creative and patient-centered interventions to better the care of this vulnerable population.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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