

# Psychiatric Boarding in the Pediatric Inpatient Medical Setting: A Retrospective Analysis

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**BACKGROUND AND OBJECTIVES:** Psychiatric concerns are a common presenting problem for pediatric providers across many settings, particularly on inpatient medical services. The volume of youth requiring intensive psychiatric treatment outnumbers the availability of psychiatric placements, and as a result many youth must board on pediatric medical units while awaiting placement. As the phenomenon of boarding in the inpatient pediatric setting increases, it is important to understand trends in boarding volume and characteristics of pediatric psychiatric boarders (PBs) and understand the supports they receive while boarding.

**METHODS:** A retrospective chart review of patients admitted as PBs to a medical inpatient unit at a large northeastern US pediatric hospital during 2013.

**RESULTS:** Four hundred thirty-seven PBs were admitted to the medical service from January to December 2013, representing a more than 50% increase from PB admissions in 2011 and 2012. Most PBs were admitted for suicidal attempt and/or ideation. Average length of boarding was  $3.11 \pm 3.34$  days. PBs received a wide range of mental health supports throughout their admissions. PBs demonstrated modest but statistically significant clinical improvements over the course of their stay, with only a small proportion demonstrating clinical deterioration.

**CONCLUSIONS:** Psychiatric boarding presents many challenges for families, providers, and the health care system, and PBs have complex psychiatric histories and needs. However, boarding may offer a valuable opportunity for psychiatric intervention and stabilization among psychiatrically vulnerable youth.

## ABSTRACT

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Over the last decade, there have been notable increases in the number of youth seeking treatment of mental health issues in the United States, particularly inpatient mental health and substance abuse hospitalizations.<sup>1,2</sup> As children have sought acute psychiatric care in larger numbers, there have also been dramatic reductions in the number of available psychiatric beds.<sup>2,3</sup> The practice of holding any patient in the emergency department (ED), inpatient unit, or another temporary location after providers have decided that the patient requires placement for which a bed is not available is defined by the Joint Commission as boarding,<sup>4</sup> which is recommended not to exceed 4 hours. Boarding affects youth with mental illness significantly more than those with medical illness, and psychiatric boarding creates a multitude of stressors and problematic outcomes for children, families, health care providers, hospitals, and the larger health care system,<sup>5,6</sup> including delays in receiving mental health care when most needed, detriment to medical care of boarding and nonboarding patients,<sup>7,8</sup> and financial losses for families and hospitals.<sup>9</sup>

Despite recent attention from researchers, state legislature,<sup>10</sup> and the media<sup>5,11,12</sup> about the many problems associated with psychiatric boarding, discussions have primarily focused on boarding in EDs. Few studies specifically describe the psychosocial complexities of psychiatric boarders (PBs), especially those admitted to inpatient pediatric units, and the interventions that can be provided in this setting. Child and adolescent mental health is becoming an increasingly salient concern for pediatric hospitalists and the pediatric health care system: mental health issues are the most frequent reason for hospitalization among children 10 to 14 and second most frequent for children 15 to 17.<sup>13</sup> In addition, Mansbach et al<sup>14</sup> found that approximately one-third of PBs from the ED were transferred to inpatient pediatric units to continue boarding.

There are important differences between psychiatric boarding in the ED and on pediatric units, which may contribute to unique vulnerabilities necessitating

thoughtful approaches to treatment. Specifically, a reverse triage system has been identified in which patients with greater clinical severity, who are considered more psychiatrically acute, are more likely to experience delays in transferring to a psychiatric facility from the ED and more likely to board on inpatient pediatric units.<sup>7,14</sup> Additionally, inpatient pediatric services may see a higher proportion of PBs with concomitant medical issues, such as complications from a serious suicide attempt, eating disorders, or somatoform disorders that require medical stabilization before psychiatric placement.<sup>15</sup> Claudius et al<sup>16</sup> found that psychiatric interventions for PBs were lacking on pediatric services, with ~20% of PBs receiving psychotropic medications and only 6% receiving counseling.

In the context of limited available studies and what was anecdotally observed as a dramatic increase in PBs on inpatient pediatric services at our institution, we sought to describe (1) trends in boarding volume over 3 years, (2) demographic and psychiatric and psychosocial characteristics of PBs seen over a 1-year period with particularly high PB volume, and (3) interventions provided by the Psychiatry Consultation Service (PCS) and outcomes of boarding.

## METHODS

The current retrospective chart review included PBs admitted to inpatient pediatric units at Boston Children's Hospital, a large US tertiary academic freestanding pediatric facility, between January and December 2013. Psychiatric boarding was defined as any instance in which a patient remained hospitalized to await psychiatric placement after being medically cleared. Patients became PBs in one of 2 ways: (1) patients were evaluated by psychiatry clinicians in the ED, determined to require psychiatric hospitalization, and transferred to an inpatient pediatric unit to await placement after ~24 hours of unsuccessful attempts at placement from the ED or (2) patients were admitted to an inpatient pediatric unit for medical evaluation and stabilization (eg, because of altered mental status, after a suicide attempt, etc), were evaluated by the

PCS during the medical admission, deemed to require psychiatric placement, and remained on the unit to await psychiatric placement after medical clearance. The major goals of PCS involvement were the following: (a) conduct a psychiatric diagnostic evaluation, (b) determine appropriate disposition, (c) work with case managers to identify and facilitate transfer to a psychiatric treatment program as quickly as possible, (d) ensure patient safety while boarding on pediatric units, (e) initiate psychiatric interventions during the boarding period, and (f) collaborate with relevant providers outside the hospital system (school, mental health providers, primary care providers, etc) to mitigate the effects of delayed access to care.

Two standardized clinical rating scales of global functioning were completed by the PCS: the Clinical Global Impressions scale (CGI)<sup>17</sup> and the Children's Global Assessment Scale (CGAS).<sup>18</sup> The CGI was administered daily and assesses global functioning before and after implementation of psychiatric interventions. It contains 2 single-item companion scales, CGI severity and CGI improvement: CGI severity rates a patient's global severity of psychopathology from 1 (normal, not at all ill) to 7 (among the most extremely ill patients), and CGI improvement rates clinical improvement or decline in the patient's condition, from 1 (very much improved) to 7 (very much worse). The CGAS is another single-item rating scale of global psychiatric functioning. It rates youth on a scale of 1 (the most impaired) to 100 (the healthiest), with guidelines for each decile to aid in determining the most appropriate rating. The CGAS is designed to be administered every 30 days, therefore only the CGAS ratings assigned at admission were used for the current study. Extensive interrater reliability trainings and assessments were conducted within the psychiatry department before the current study to ensure consistency in CGI and CGAS ratings. There is documented use of CGI in inpatient psychiatry with improvement during acute inpatient admission<sup>19</sup> as well as in the inpatient consultation-liaison setting on medical wards.<sup>20</sup>

The retrospective chart review was approved by the hospital's institutional review board. Patients included in the study were identified by using existing PCS patient tracking databases. Patients for whom psychiatric placement was secured while boarding in the ED and thus did not transfer to any inpatient pediatric units were not included in the study. Medical charts were reviewed and coded by the authors. Multiple trainings were held to ensure the consistency of data coding and ensure interrater reliability. Data gathered included: patient demographics, hospitalization variables, psychiatric diagnoses, interventions received while boarding, disposition recommendations, and a range of variables pertaining to clinical and/or psychosocial history. Data were entered into Research Electronic Data Capture, which is a free, Health Insurance Portability and Accountability Act-compliant web-based application designed to support data capture for research studies.<sup>21</sup> Analyses were conducted by using IBM SPSS Statistics version 20<sup>22</sup> and effect sizes were calculated by using a web-based effect size calculator.<sup>23</sup> Data reported include descriptive data, results from paired-sample *t* tests and  $\chi^2$  tests, and effect size calculations.

## RESULTS

### Volume Trends

Four hundred and thirty-seven instances of psychiatric boarding on inpatient pediatric units occurred between January and December 2013 and were included in the current study. Compared to 2011 and 2012, PBs increased in both number and proportion of overall PCS consultations (Fig 1).

### Demographic, Psychiatric, and Psychosocial Characteristics

The average PB was a  $15.16 \pm 2.80$ -year-old white (66.1%) girl (64.1%). The majority (97.2%) of patients had health insurance, with ~46% of patients covered partially or fully by government-funded insurance programs (eg, Medicaid). Most PBs were referred to the hospital by a family member (48%,  $n = 210$ ) or outpatient mental health provider (38%,  $n = 166$ ). Suicidal ideation

or attempt was the most common reason for boarding followed by aggressive behavior; of note, many patients presented with multiple reasons for boarding (Fig 2). Most suicide attempts involved intentional ingestions of medications or other substances (76.4%). PBs were most often admitted to the general pediatrics/hospitalist service (56.3%), followed by toxicology (12.1%) and adolescent medicine (11%), with the remaining PBs distributed among several other medical inpatient services.

The most common psychiatric diagnoses (per the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*<sup>24</sup>) were depressive disorders, followed by anxiety disorders, disruptive behavior disorders, bipolar disorders, eating disorders, and several other disorder categories (Table 1). The majority of patients ( $n = 311$ , 71.2%) had more than one psychiatric diagnosis at discharge. The vast majority of patients had a previous history of mental health treatment (Table 1). Nearly half of PBs ( $n = 199$ , 45.5%) reported a past or current history of specialized education services. Approximately one-third ( $n = 147$ ) of PBs reported a trauma history, 29.3% ( $n = 128$ ) reported a history of bullying, and 16.2% ( $n = 71$ ) had current involvement with child protective services.

### Interventions

PBs received a wide range of mental health supports and interventions during their admissions, with nearly 90% receiving brief supportive or cognitive behavioral therapy, ~50% receiving psychotropic medication recommendations, and 27.5% receiving behavioral plans. Most patients required one-to-one safety-related observation by hospital staff at some point during their admissions (Table 2). PBs were seen daily by PCS clinicians, typically a child psychiatry or psychology trainee and attending psychiatrist or psychologist, and were seen during the weekends and/or holidays by on call psychiatry staff. Trainees spent ~1 hour per day in direct contact with each PB ( $m = 60.85 \pm 34.68$  minutes), excluding time coordinating care with other providers, facilities, and insurance companies,

whereas PCS attending physicians spent an additional  $48.33 \pm 28.57$  minutes on the pediatric unit per patient daily.

### Outcomes

Mean CGAS at admission was  $30.58 \pm 11.71$ , indicating substantial risk of harm to self or others and/or notably impaired functioning in most areas of life. Despite this clinical severity, only 6.4% ( $n = 28$ ) of PBs required physical restraints or emergency intramuscular doses of psychotropic medication during their admission. CGI improved significantly from admission to discharge (admission,  $m = 5.30 \pm 0.887$ ; discharge,  $m = 4.88 \pm 0.972$ ;  $t = 7.861$ ,  $P < .001$ ;  $d = 0.4514$ , 95% confidence interval 0.2964–0.6064), indicating a moderate effect based on the confidence intervals of the effect size. CGI improvement ratings indicated that 33% of PBs ( $n = 147$ ) showed clinical improvement during their hospitalization and 12% ( $n = 53$ ) showed decline, with the remaining patients showing no change while boarding. A significantly greater proportion of patients who boarded longer than 5 days, and thus had more time to receive mental health interventions, showed clinical improvement than patients who boarded 5 days or less (66% vs 34%;  $\chi^2 = 24.462$ , degrees of freedom = 2,  $P < .001$ ). In addition, no significant differences were observed with regard to clinical declines after 5 days of boarding (21% vs 13%;  $\chi^2 = 4.063$ , degrees of freedom = 2,  $P = .131$ ).

Average length of boarding after medical clearance was  $3.11 \pm 3.34$  days. Most PBs (82.6%) boarded after medical clearance for 5 days or less, psychiatric placement was secured within 24 hours for 82 patients (18.8%), and a small proportion of patients boarded longer than 5 days. Most patients (77.1%) discharged to overnight treatment facilities (63.8% to inpatient psychiatric units and 13.3% to residential units), 14% were discharged to partial hospitalization programs, and 8.9% to outpatient psychiatry and psychotherapy treatments. Approximately 21% of PBs had 2 or more hospital readmissions and episodes of boarding during the 1-year study period.



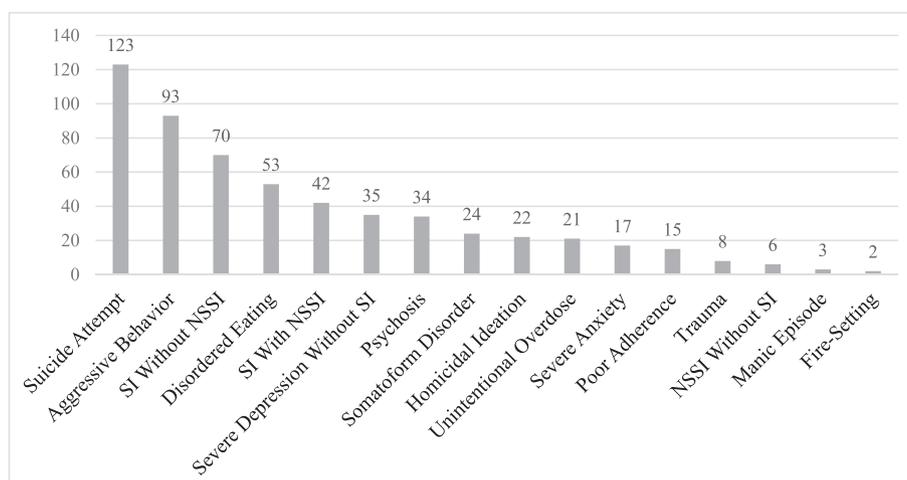
**FIGURE 1** PBs on medical units by (A) total number seen by the PCS and (B) proportion (%) of total psychiatry consults from 2011 to 2013.

## DISCUSSION

In the 14 years since Mansbach et al<sup>14</sup> described the phenomenon of psychiatric boarding on pediatric units,<sup>15</sup> psychiatric boarding has continued to affect hospitals around the country.<sup>5,16,25</sup> The current study is

the first to describe comprehensive interventions and outcomes of PBs in the inpatient pediatric setting, and it highlights the complexity and psychosocial vulnerabilities of this diverse patient population. Specifically, nearly 40% of PBs

had a past history of inpatient psychiatric hospitalization, >70% had 2 or more psychiatric diagnoses, two-thirds had a previous history of psychopharmacologic treatment, nearly half received special education services, approximately



**FIGURE 2** Reasons for boarding. NSSI, nonsuicidal self-injury; SI, suicidal ideation.

**TABLE 1** Pediatric PB Demographics and Psychiatric History

Characteristic	N (%)
Sex	
Girl	280 (64.1)
Boy	157 (35.9)
Race and/or ethnicity	
White, non-Hispanic	289 (66.1)
African American	61 (14)
Hispanic	53 (12.1)
Other	24 (5.5)
Asian	10 (2.3)
Psychiatric diagnoses	
Depressive disorders	247 (56.5)
Anxiety disorders	147 (33.6)
Disruptive behavior disorders	105 (24)
Bipolar disorders	79 (18.1)
Eating disorders	70 (16)
Pervasive developmental disorders	44 (10.1)
Post-traumatic disorders	43 (9.8)
Somatoform disorders	43 (9.8)
Substance use disorders	40 (9.2)
Psychotic disorders and delirium	24 (6.2)
Adjustment disorders	10 (2.3)
No. of psychiatric diagnoses	
1	126 (28.8)
2	166 (38)
3	100 (22.9)
4	31 (7.1)
5 or more	14 (3.2)
Past treatment	
Any past treatment	380 (87)
Outpatient therapy	308 (70.5)
Psychotropic medications	289 (66.1)
Inpatient psychiatric hospitalization	170 (38.9)
Partial hospitalization program	53 (12.1)
Acute residential treatment	49 (11.2)
Long-term residential treatment	47 (10.8)

one-third reported a history of trauma and/or bullying, and ~16% had current involvement with child protective services.

In contrast to the findings from Claudius et al,<sup>16</sup> PBs in the current study received a variety of mental health interventions and supports, demonstrated moderate improvements in global functioning over the course of admission as evidenced by standardized measurement of clinical global

**TABLE 2** Psychosocial Supports Provided While Boarding

Psychosocial Support	N (%)
Psychoeducation	398 (91.1)
Psychotherapy	381 (87.2)
One-to-one care companion	316 (72.3)
Psychotropic medication	223 (51.0)
Collateral contact (outside providers)	207 (47.4)
Behavioral plan	120 (27.5)
Social work support	102 (23.3)
Security involvement	51 (11.7)
Protective actions (child protective services reporting)	36 (8.2)
Systems meeting (providers and outside agencies)	35 (8.0)

impressions, and some were diverted from inpatient psychiatric hospitalizations, including stepping down to residential and partial programs. These findings highlight the fact that youth who are boarding are in a critical period for intervention and may benefit from brief, targeted mental health interventions provided on the medical units while boarding. It is important to note other factors independent of psychiatric interventions that may have contributed to clinical improvements, most notably the passage of time after crisis and the opportunity for acute stabilization in a secure, structured, and supportive environment. Pediatric inpatient units are not ideal treatment settings for persons in need of urgent psychiatric treatment; however, until the problem of psychiatric boarding is solved, boarding may represent a valuable opportunity to provide brief stabilization and treatment during what is often considered a waiting period. It is noteworthy that few PBs required physical restraints or emergency intramuscular doses of psychotropic medication while boarding; this highlights the potential benefit of collaboration among pediatric and mental health providers to proactively implement environmental, psychotherapeutic, and psychopharmacological interventions that enhance patient safety. Initiating psychiatric treatment of PBs on pediatric units can provide youth and families a sense of agency and direction while waiting for placement, and it may contribute to patients' stabilization such that they could discharge to a lower level of psychiatric

care and reduce time spent boarding. It could potentially also reduce the length of admission when placement is finally secured at the inpatient psychiatric facility.

Because of a desire to improve clinical outcomes of PBs and in response to the significant increase in volume of PBs at the current institution, which threatened to outstrip the capacity of PCS clinicians, a new hospital service model was recently initiated to further enhance the care of PBs on pediatric units. This includes (1) the addition of 2 full-time social workers to the PCS to work with staff psychiatrists in providing care exclusively to PBs admitted to the pediatric hospitalist and toxicology services; (2) the expansion of a team of 4 psychiatric nurses to assist bedside pediatric nurses in implementing behavioral interventions; and (3) the development of a standardized protocol for PBs that involves a range of specialized interventions, including (a) proactive environmental safety planning, (b) daily individual psychotherapy, (c) proactive psychopharmacological interventions, (d) family meetings (e) collaboration with pediatricians, child life specialists, and psychiatric case managers, (f) daily team huddles, and (g) comprehensive care coordination with outpatient providers, school staff, and other community agencies.

It is important to note that the goal of boarding is not to replace psychiatric hospitalization; the care provided to PBs on pediatric units is not equivalent to treatment received on an inpatient psychiatric unit because interventions like

group therapy, interactions with other patients and/or peers, and ongoing milieu therapy and activities are difficult to safely provide on pediatric units. The majority of PBs in the current study continued to require psychiatric hospitalization after boarding; however, a substantial minority of patients were diverted from locked inpatient units, suggesting that some received sufficient stabilization during boarding to no longer require such intensive treatment. It will be important to study the impact of these enhanced treatment interventions during the boarding period on diverting more PBs from inpatient psychiatric placements and instead be able to discharge from the hospital to less restrictive psychiatric treatment programs. For patients who continue to require inpatient psychiatric care after boarding, the length of stay at the psychiatric unit may be reduced as a result of initiation of intensive psychiatric treatment during the boarding process.

There are several limitations to the current study, most notably due to the cross-sectional nature of the study design that used retrospective chart reviews. As such, it is not feasible to determine to what extent mental health interventions received while boarding directly contributed to clinical improvements. Multisite prospective studies across pediatric hospitals are needed to better understand the nature and potential benefit of providing brief interventions to PBs while boarding. Ideally, these studies should include control or comparison groups, which would allow more detailed examination of mechanisms of change (ie, clinical improvement or deterioration) while boarding. The current study was unable to comprehensively examine individual, environmental, and systemic factors that contribute to boarding, and this will be of notable importance in future investigations. The authors were not able to examine all 3 study years in detail, instead choosing to emphasize the study year in which boarding volume was highest and medical chart data were most comprehensive. Finally, the current study was conducted at a single pediatric institution, and therefore it may not be representative of or generalizable to all pediatric institutions. For instance, the

range and depth of resources available to patients at the study institution may not be available or feasibly applied at all pediatric institutions. Similarly, PBs referred to PCS had equal access to available hospital services and interventions while boarding regardless of insurance status, which may also not be feasible across all pediatric institutions. Further efforts are currently being planned by organizations such as the Child Mental Health Campaign<sup>26</sup> to study psychiatric boarding across multiple pediatric EDs and advocate for solutions which could potentially also impact boarding on pediatric medical units.

## CONCLUSIONS

Psychiatric boarding presents an array of challenges for individual youth and their families, pediatric and mental health providers, and the larger health care system, and it is critical to better understand the needs of this population to solve both short-term (eg, how to provide the best care to youth who are boarding) and long-term (eg, how to reduce or eliminate psychiatric boarding) difficulties presented. The current study is the first to describe a range of interventions and programmatic initiatives to enhance the care of PBs on pediatric units and suggests that, as we work on solutions for reducing boarding at a systemic level, psychiatric boarding may present an important opportunity to transform a waiting period into a valuable intervention.

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