

# Referral and Resource Use Patterns for Psychiatric-Related Visits to Pediatric Emergency Departments

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**Objective:** To describe the patterns of referral and use of resources for patients with psychiatric-related visits presenting to pediatric emergency departments (EDs) in a pediatric research network.

**Methods:** We conducted a retrospective chart review of a random sample of patients (approximately 10 charts per month per site) who presented with psychiatric-related visits in 2002 to 4 pediatric EDs in the Pediatric Emergency Care Applied Research Network. Emergency department resource use variables evaluated included the use of consultation services, restraints, and laboratory tests as well as ED length of stay.

**Results:** We reviewed 462 patient visits with a psychiatric-related ED diagnosis. Mean (SD) age was 12.8 (3.7) years, 52% were male, and 49% were African American. The most common chief complaints were suicidality (47%), aggression/agitation (42%), and anxiety/depression (27%), alone or in combination. Ninety percent of patients (range across sites, 83%–94%) had a mental health consult in the ED, 5% were restrained (range, 3%–9%), and 35% had a laboratory test performed (range, 15%–63%). Mean (SD) ED length of stay was 5.1 (5.4) hours, and 52% were admitted (93% to a psychiatric bed, including transfers to separate psychiatric facilities).

**Conclusions:** Children with psychiatric-related visits seem to require substantial ED resources. Interventions are needed to reduce the burden on the ED by increasing the linkage to mental health services, particularly for suicidal youths.

**Key Words:** mental health services

(*Pediatr Emer Care* 2009;25: 217–220)

Pediatric mental health problems increased during the 1990s, with 1 in 10 children and adolescents having their conditions diagnosed with a mental health problem that causes severe impairment of function.<sup>1–3</sup> Once identified, only 1 in 5 children with mental health problems receives mental health treatment.<sup>2,4</sup> A nationwide decrease in mental health services capacity<sup>5</sup> has resulted in an increased burden on the emergency department (ED) to handle mental health crises.<sup>6,7</sup>

Mental health–related visits in children have almost doubled in US EDs from 1993 to 1998, with an estimated 327 visits per

10,000 people annually.<sup>8–10</sup> This increase is out of proportion to the increase in visits related to other chronic diseases.<sup>10,11</sup> Emergency department visits related to mental health problems seem to be resource-intensive,<sup>8,12–14</sup> but data examining referral patterns and resource use have mainly occurred at individual sites. The Pediatric Emergency Care Applied Research Network (PECARN)<sup>15,16</sup> is the first federally funded national research network of pediatric EDs, presenting an opportunity to evaluate pediatric psychiatric emergencies across different sites. Our specific aim was to use this network to describe a more broad perspective on the patterns of referral, consultation, and use of ED resources for children with psychiatric-related visits.

## METHODS

### Study Design

We performed a descriptive retrospective chart review of psychiatric-related visits occurring from January to December 2002 at 5 urban pediatric EDs of PECARN. The 5 centers were self-selected based on interest. The data for 1 site were not analyzed because of a substantial missing data. The remaining 4 sites were urban, tertiary, level 1 trauma centers. The characteristics of participating EDs are shown in Table 1. The study was approved by each institution's review board.

### Participants

#### Subject Eligibility and Case Ascertainment

Patients younger than 20 years were eligible based on *International Classification of Diseases, Ninth Revision*, codes in the primary or secondary diagnosis position falling between 290.0 and 314.9 (psychoneurosis, psychotic, psychosis, suicidal, or overdose). We excluded patients with a history of a mental health diagnosis who were being evaluated strictly for medical reasons, such as a fever or cough.

Using the network's database of patient visits at all PECARN centers, the network's data management center selected 10 charts per month per center using a clinical shift centered strategy. All participating centers used the same day/shift combinations. Days were chosen from 2 separate series of random uniform numbers for weekday and weekend days. In a similar fashion, we randomly selected among shifts (morning, evening, or night) for each selected day. The chart selected by the data management center was the first study-appropriate patient assessed in the ED during the selected day/shift combination.

### Study Procedures

Research investigators and associates were trained to follow a manual of operations that defined each variable and the method to abstract data from the complete medical record, including ED social/psychiatric consultation notes, using a standardized form. Investigators abstracted data on past psychiatric history,

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ISSN: 0749-5161

**TABLE 1.** Overall ED Characteristics of Participating Hospitals, 2002

	Children's Hospital of Michigan <sup>a</sup>	Children's National Medical Center <sup>b</sup>	Morgan Stanley Children's Hospital of New York Presbyterian <sup>c</sup>	Cincinnati Children's Hospital Medical Center <sup>d</sup>
Total ED annual volume	68,335	61,815	43,344	82,347
Psychiatric annual ED volume	1629 (2.4%)	1361 (2.1%)	510 (1.2%)	3601 (4.4%)
Race				
White	182 (11.2%)	257 (19.5%)	279 (54.7%)	2436 (67.6%)
African American	1213 (74.5%)	936 (71.1%)	103 (20.2%)	1043 (29.0%)
Other/unknown	234 (14.3%)	123 (9.4%)	128 (25.1%)	122 (3.4%)
Median ED LOS for all patients, hour	2.3	2.4	2.2	2.4
Freestanding ED or separate pediatric ED attached to adult facility	Separate	Freestanding	Separate	Freestanding
Pediatric psychiatric consult availability in ED	Yes	Yes	Yes	Yes
Site has pediatric psychiatric inpatient beds	No	Yes	No	Yes

including prior psychiatric outpatient care and hospitalizations and aspects of ED psychosocial management. Missing data from demographic variables were categorized as unknown. Other than demographics, we recorded data as "not documented" if not specifically mentioned in the medical record. A priori, we decided to analyze the following variables as negative even if not specifically documented in the medical record: prior outpatient psychiatric care, use of psychiatric medications on ED arrival, previous psychiatric admission, mental health consultation in the ED, and restraint use in the ED. We excluded 1 site because its rates of data that were not documented were greater than 10% in multiple variable fields.

We determined a list of psychiatric chief complaints before data abstraction. Discharge diagnoses according to the *International Classification of Diseases, Ninth Revision*, was listed based on frequency. We considered a patient to have had a psychiatric consult if there was any documentation that a mental health specialist was consulted (general social worker or psychiatric social worker, nurse, resident, or attending). A psychiatric social worker provides emergency psychiatric and/or behavioral health assessment to promptly determine the appropriate level of care. This includes a mental status examination and risk assessment. A general social worker provides psychosocial assessments of patient and family functioning to identify strengths, concerns, and needs to assist in treatment planning.

We defined the length of stay (LOS) as the time between ED arrival and discharge. We considered restraints to have been used if a physician order for physical or chemical restraints was noted. Laboratory test use was based on whether there was a physician order for or documentation of laboratory results.

### Statistical Methods, Data Analysis, and Interpretation

We selected the sample size of 120 charts per site based on pragmatic considerations of having each site review 10 charts for each of the 12 months. We analyzed all data using basic descriptive statistics. For continuous variables, we reported means with SDs or medians with interquartile ranges (IQRs). We reported frequencies and proportions with ranges for categorical variables. All analyses were performed using SAS 9.1 (SAS Institute, Inc., Cary, NC).

### RESULTS

Of the 480 visits selected, records for 17 patient visits could not be found, and 1 patient was subsequently noted to be older than 20 years, leaving 462 visits that were included in the analysis. Demographic characteristics of children presenting to the ED with psychiatric visits are presented in Table 2. The mean (SD) age of children was 12.8 (3.7) years, and 49% of patients were African American. Sixty-seven percent of patients with a psychiatric visit had prior outpatient psychiatric care noted in the intake assessment, and 48% were currently taking psychiatric medications. Thirty-eight percent of psychiatric visits had a prior ED visit for a psychiatric reason, and 35% had a prior admission for a psychiatric problem. Parents were the most

**TABLE 2.** Patient Characteristics and ED Referral Source (n = 462)

Male, n (%)	238 (52%)
Age, mean (SD), y	12.8 (3.7)
Race, n (%)	
African American	227 (49%)
White	189 (41%)
Other/unknown	46 (10%)
Insurance category, n (%)	
Medicaid	216 (47%)
Commercial	187 (40%)
Self-pay/other/unknown	59 (13%)
Referral source to the pediatric ED, n (%)	
Parent	261 (56%)
Law enforcement	57 (12%)
School	40 (9%)
Mental health provider	39 (8%)
Social services/crisis services	37 (8%)
Medical provider	28 (6%)
Self	16 (3%)
Other/unknown	55 (12%)

\*Total > 100%: Some patients had multiple referral sources.

**TABLE 3.** Emergency Department Resources Used (n = 462)

Psychiatric consult obtained	415 (90%; range by site, 83%–94%)
Laboratory test(s) obtained	161 (35%; range by site, 15%–63%)
Restraints used (physical or chemical)	24 (5%; range by site, 3%–9%)
ED LOS, h	
Mean (SD)	5.1 (5.4)
Median (IQR)	3.8 (0.17–57)

common source of referral to the ED. Seventy-four percent of the psychiatric-related visits were walk-ins to the ED, 15% were brought by ambulance, and 9% came with police.

The most common psychiatric-related chief complaints, alone or in combination, were suicidality (47%), aggression/agitation (42%), and anxiety/depression (27%). The most common discharge diagnoses, alone or in combination, were depression (44%), behavior disorder (22%), suicidal (15%), and anxiety disorder (4%).

Most patients (90%) had a mental health consult in the ED, with 58%, 27%, and 14% of patients having a consult by a social worker (90% of which were psychiatric social workers), child psychiatrist, and adult psychiatrist, respectively (Table 3). Restraints were uncommonly used (5%), and approximately one third of patients had a laboratory test ordered. Forty-four percent of patients with psychiatric-related visits were discharged home from the ED, 52% were admitted (93% to a psychiatric bed), 2% either eloped or left against medical advice, and 2% had other dispositions. The LOS was skewed, with a mean (SD) ED LOS of 5.1 (5.4) hours and a median ED LOS of 3.8 hours (IQR, 0.17–57 h).

## DISCUSSION

Our study identifies pediatric patients presenting with psychiatric-related ED visits as a seemingly resource-intensive group. Most patients studied received an ED psychiatric consult and, similar to other studies,<sup>8,12,17</sup> a large proportion (52%) of our patients were admitted, many needing transfer to outside facilities. Although not analyzed statistically, ED LOS seemed prolonged compared with ED LOS from the participating centers (Table 1) and from previous ED data.<sup>17</sup> It is possible that the long LOS for psychiatric visits results from waiting time associated with consults, the admission process, and turn around time for laboratory tests.<sup>8,12,17</sup> Very few patients (5%) required mechanical or chemical restraints, which is somewhat less than that previously reported.<sup>8</sup> Patients eloped 2% of the time, a rate similar to one prior study (3%). Elopement of these high-risk patients underscores the frequent use of and need for close vigilance of many psychiatric patients during their ED stay, such as one-on-one supervision or security.<sup>12</sup>

In the present study, parents were the most likely to refer patients to the ED. As our study population represents a largely urban, underserved group, it is likely that there are few alternatives other than the ED for mental health services. Studies have documented health disparities for African Americans in mental health-related services and interventions.<sup>18</sup> African American families across socioeconomic strata make less use of traditional mental health services than white families<sup>19</sup> and may only seek care for their children in mental health crises. In addition to parent referrals, law enforcement and school officials also contributed to the ED referral base, which may reflect the zero tolerance policy of many school districts and, again, the lack of timely access to mental health care for

children in crisis. A joint American Academy of Pediatrics–American College of Emergency Physicians Policy Statement, *Pediatric Mental Health Emergencies in the EMS System*, indicated the need for “promotion of education and research for mental health emergencies specifically to evaluate the adequacy of patient access to pediatric mental health services.”<sup>20</sup>

An important finding in our study was that almost half of the children presenting for psychiatric-related illnesses reported feeling “suicidal” as a chief complaint. This is very concerning given that the suicide completion rate in teenagers has increased substantially over the past decade with 1.6 per 100,000 deaths in children 10 to 14 years old and 9.5 per 100,000 for children 15 to 19 years old.<sup>21</sup> Studies show that half of the adolescents seen for suicidal behavior in the ED are never referred for treatment and, even if referred, compliance with treatment is low.<sup>22</sup> Strategies for engaging these high-risk families into mental health services might include ED-based suicide interventions and/or enhanced referral into mental health services.<sup>23</sup>

As the volume of mental health visits has increased in the ED, the role of adjunct psychiatric mental health professionals, usually in the form of psychiatric social workers, has increased. In our study, 90% of psychiatric-related visits had a psychiatric consult. No other studies have reported on the frequency of obtaining a psychiatric consultation or on the training of the consultant. Larger tertiary pediatric EDs, as represented in this study, often have access to social workers specifically trained to evaluate children with mental health problems in the ED setting. This role has come about largely because of the shortage of child psychiatrists, lack of access to psychiatric inpatient beds, and the need for after hours and weekend access to psychiatric evaluations in the ED. These specialized practitioners can evaluate and make appropriate disposition decisions. In addition, they have an intimate knowledge of access to follow-up services based on insurance status and region. Unfortunately, not all EDs have access to social workers trained in the ED-based mental health evaluation of children. Smaller pediatric- and adult-oriented EDs are less likely to employ these practitioners.<sup>14</sup>

Our study is limited by the retrospective nature of the design and having 1 participating site dropped because of data quality. In addition, the EDs included were tertiary care, urban centers whose patients and available resources are potentially dissimilar to other settings.

## CONCLUSIONS

Psychiatric-related visits seem to be resource-intensive across this sample of urban pediatric EDs. Interventions to reduce the burden on the ED by increasing the linkage into mental health services particularly for suicidal youth will require a combined effort of the pediatric, psychiatric, and emergency medical services stakeholders.

## ACKNOWLEDGMENTS

The PECARN is supported by cooperative agreements U03MC00001, U03MC00003, U03MC00006, U03MC00007, and U03MC00008 from the Emergency Medical Services for Children program of the Maternal and Child Health Bureau, Health Resources and Services Administration, US Department of Health and Human Services. PECARN Steering Committee: N. Kuppermann (Chair), D. Alexander, E. Alpern, J. Chamberlain, J. M. Dean, M. Gerardi, J. Goepf, M. Gorelick, J. Hoyle, D. Jaffe, C. Johns, N. Levick, P. Mahajan, R. Maio, S. Miller (deceased), D. Monroe, R. Ruddy, R. Stanley, D. Treloar, M. Tunik, and A. Walker. Health Resources and Services Administration/Maternal and Child Health Bureau Liaisons: D. Kavanagh and H. Park.

Central Data Management and Coordinating Center: M. Dean, R. Holubkov, S. Knight, L. Dong, and A. Donaldson. Data Analysis and Management Subcommittee: J. Chamberlain (Chair), M. Brown, H. Corneli, J. Goepf, R. Holubkov, P. Mahajan, K. Melville, E. Stremski, and M. Tunik. Grants and Publications Subcommittee: M. Gorelick (Chair), E. Alpern, J. M. Dean, G. Foltin, J. Joseph, S. Miller (deceased), F. Moler, R. Stanley, and S. Teach.

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