Parent Partners: Evaluation of a Novel Peer-Support Intervention for the Caregivers of Children Hospitalized for Behavioral Health Conditions

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ABSTRACT

OBJECTIVE: Nearly 10% of all hospitalized children have a primary behavioral health diagnosis, but the effectiveness of treatment can be limited by caregivers' challenges navigating the behavioral health system. In this study, we assessed a novel peer-support intervention ("parent partners") designed for the caregivers of children admitted to an inpatient psychiatric unit.

METHODS: We used a mixed-methods approach including 1) document review and interviews to assess implementation and 2) a difference-in-differences analysis using claims for Medicaid-enrolled children admitted to the intervention inpatient psychiatric unit and matched comparison children admitted to other inpatient psychiatric units to assess the impacts on health care use after discharge.

RESULTS: Ninety-six percent of caregivers who were offered the intervention engaged with a parent partner. The primary challenges to implementation were accommodating the needs of parent partners to address behavioral health crises among their own children and initial limited engagement from behavioral health clinicians. The intervention leaders reported success in addressing these through adjustments to staffing policies, training parent partners in engagement with clinicians, and incorporating parent partners into team rounds. We did not find a statistically significant difference in follow-up outpatient behavioral health visits (adjusted treatment to comparison difference +3% [90% CI = −2%, +9%]), readmissions (+5% [−33%, +43%]), or behavioral health ED visits (−15% [−44%, +14%]).

CONCLUSIONS: This novel intervention was implemented successfully, and although our study did not find statistically significant impacts on health care use after discharge, the findings for ED visits are suggestive of benefits. Parent peer support in inpatient settings warrants additional investigation.

KEYWORDS: behavioral health; inpatient child psychiatry; mental health; peer support

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WHAT'S NEW

A children's hospital successfully implemented an intervention to offer peer-to-peer support for caregivers of children admitted to an inpatient psychiatric unit. An analysis of impacts on health care use was underpowered, but suggested potential benefits warranting future study.

CHILDREN WITH BEHAVIORAL health conditions comprise a substantial proportion of all pediatric hospitalizations.[1−3] However, the effectiveness of treatment for these children during and after hospitalization can be limited by the stress the situation presents for caregivers and subsequent challenges navigating the behavioral health system, often for the first time.[4,5]

Peer-support interventions include services in which individuals with specific life experiences offer support to individuals facing similar challenges.[6] For several decades, peer support has been pursued as a promising strategy to promote self-efficacy for adults with behavioral health conditions and increase their engagement with treatment.[7,8] More recently, services for children with behavioral health conditions have increasingly integrated peer support for caregivers of affected children, mostly focused in outpatient and community-based settings.[8−13] The pediatric community has also increasingly emphasized the importance of patient- and family-centered care.[14] However, the evidence for peer-support interventions has

been limited and has not included acute mental health care for children.

From 2013 to 2015, Nationwide Children's Hospital (NCH) and Akron Children's Hospital (ACH) implemented a peer-support intervention (known as *parent partners*) for caregivers of children with acute behavioral health care needs. This intervention was implemented as one part of a larger federally funded cooperative agreement with the 2 organizations aimed at improving health, improving care, and reducing health care costs for children enrolled in Medicaid.[15] The goals of this study were to: 1) assess the implementation of the parent partner intervention and 2) to test the prespecified hypotheses that the intervention would increase outpatient behavioral health follow-up visits after the hospital stay, decrease behavioral health hospital readmissions, and decrease behavioral health emergency department (ED) visits.[16]

METHODS

We conducted a mixed-methods study including: 1) an implementation evaluation based on document review and interviews with intervention leaders and staff, 2) a difference-in-differences impact analysis using Ohio Medicaid claims from intervention and matched comparison children.

CONTEXT

The 2 children's hospitals partnered to receive a 3-year, $13.2 million Health Care Innovation Award from the Center for Medicare and Medicaid Innovation (CMMI) to implement a range of interventions, including the parent partner intervention. ACH is a free-standing pediatric tertiary care hospital in northeastern Ohio that implemented the intervention in its 12-bed inpatient child psychiatry unit. NCH in Columbus, Ohio implemented the intervention in its behavioral health crisis stabilization unit. We focused this study on ACH's intervention because data limitations prevented us from clearly identifying children treated in NCH's unit and constructing a comparison group.

INTERVENTION

ACH's intervention targeted Medicaid-enrolled children and included 2 linked components: 1) peer-to-peer support by parent partners for caregivers of children during admission to the inpatient unit and as needed after discharge, and 2) limited posthospitalization care management. The parent partner component included 5 new, paid parent partner positions and 1 full time supervisor, who was a licensed professional clinical counselor. The primary qualification for the parent partner position was the individual needed to have extensive experience with the child behavioral health care system as the parent or caregiver of a child with significant behavioral health care needs. ACH recruited parent partners through contacts in its behavioral health department and through local behavioral health agencies and advocacy groups.

The program trained the parent partners to use their own experiences and knowledge to empathetically communicate with caregivers and empower caregivers to engage more actively in care. Each parent partner received over 100 hours of training primarily from an outside consultant, including: 1) approaches to family-centered care, including building rapport by sharing experiences and eliciting caregivers' prior experiences with behavioral health care; 2) motivational interviewing, an evidence-based method to engage individuals and motivate change by supporting intrinsic motivations; and (3) strategies for effective interactions with behavioral health clinicians. After training, parent partners participated in weekly supervision meetings and weekly calls with the consultant to promote ongoing development of their skills.

Parent partners identified eligible children and their caregivers through a daily review of admissions to the unit. They met in person with the caregiver(s) within 24 hours of a child's admission, interacted with caregivers at least daily in person during the hospitalization and more often per caregiver request, and participated daily in behavioral health team rounds. Caregivers could opt out of the intervention. Parent partners' interactions with caregivers included active listening, sharing their own experiences, modeling positive interactions with clinicians, motivational interviewing to promote engagement with care and identifying unmet needs, and assistance with navigating the behavioral health care system. During behavioral health team rounds, parent partners identified opportunities to promote family-centered communication and care planning between clinicians and caregivers. The parent partners helped to identify important potential barriers to and facilitators of care that otherwise might not be disclosed to clinicians and to promote family-centered care by clinicians. For example, a caregiver might disclose to a parent partner that their reluctance to start a specific medication for a child was related to a prior negative experience for another family member with the same medication; the parent partner could then use this disclosure to encourage the behavioral health clinician to address the concern through a more in-depth discussion of the risk of side effects with the medication and alternative choices. ACH aimed to have a parent partner available in person in the behavioral health unit 7 days a week. Parent partners continued to follow up with caregivers by telephone as needed following discharge and scheduled calls 1 and 2 months after discharge to administer the Columbia Impairment Scale, which assesses a caregiver's ratings of global behavioral health impairment for the child.

ACH also hired a behavioral health care manager to implement the posthospitalization care management component. The care manager, a licensed clinical social worker, discussed the child's and caregivers' needs with the parent partners near the time of discharge, conducted follow-up calls with caregivers 1 to 2 days after discharge, a few days before and after the first scheduled outpatient follow-up visit, and as needed thereafter usually for a maximum of 3 months. The care manager sought to identify and address barriers to behavioral health follow-up care, such as lack of transportation or unstable housing, and connect caregivers to additional social resources such as the Medicaid transportation benefit and connection to housing programs.

DATA SOURCES

To assess program implementation, we reviewed quarterly program reports, including enrollment figures and self-monitoring metrics, and conducted site visits with interviews of ACH program leadership and parent partners. We audio-recorded and transcribed the interviews for qualitative analysis. The site visits occurred during March 2014 and March 2015.

For the impact analysis, we obtained Medicaid data for 2010 through 2015 from the Ohio Colleges of Medicine Government Resource Center. This included Medicaid enrollment, fee-for-service claims, and managed care encounter data.

ANALYSIS

We assessed the available evidence on the extent to which ACH implemented the intervention as planned based on program staffing and enrollment. Additionally, we used thematic analysis to identify the most common challenges to implementation and describe the strategies ACH used to adapt to the challenges. Two members of the research team coded interview transcripts and met to reach consensus on emergent themes.

To estimate program impacts on children's health care use after discharge, we used a difference-in-differences design with a matched comparison group to estimate impacts on 3 outcomes: 1) any outpatient behavioral health follow-up visit within 30 days of discharge; 2) any readmission with a behavioral health primary diagnosis within 60 days of discharge; 3) number of outpatient behavioral health ED visits within 90 days of discharge. Our impact estimates measured the regression-adjusted differences in postdischarge outcomes during the period when the program was fully implemented (August 2013 to May 2015) between the children discharged from the ACH inpatient child psychiatry unit (n = 540) and matched comparison children discharged from 9 comparison hospitals providing behavioral health inpatient care to Medicaid-enrolled children in Ohio, minus the differences in postdischarge outcomes before the intervention began (October 1, 2010, to December 31, 2012) between Medicaid-enrolled children discharged from ACH and matched comparison children.

We used an intent-to-treat approach to define the postintervention treatment group, meaning that we included all Medicaid-enrolled children under 18 years who were discharged from ACH's behavioral health ward during the intervention period even if they did not receive services. If a child had multiple stays at a behavioral health unit during these time periods, we selected the first stay as the index admission. We defined the preintervention treatment group in the same way.

We limited the analytic sample to children who were enrolled in Medicaid for all 12 months before their hospital stay to ensure that we could reliably assess baseline characteristics. We further limited the comparison sample to children discharged from 9 comparison hospitals in Ohio that had similar volumes of acute behavioral health admissions for children enrolled in Medicaid. These comparison hospitals included 5 academic hospitals, 2 freestanding psychiatric hospitals, and 2 community hospitals. We excluded children residing in a 34-county region of the state served by NCH and children admitted to another large children's hospital in Ohio with much larger and increasing numbers of discharges, suggesting a fundamentally different treatment environment than ACHs.

We matched the children admitted to ACH in the pre- and postintervention periods to comparison children using a mix of exact and propensity score matching. We used exact matching for the child's age (2-year intervals), reported gender, primary diagnosis for the admission, and discharge date within 90 days of an intervention child's discharge. We used propensity score matching for other covariates, including race/ethnicity, reason for Medicaid eligibility, managed care enrollment, claims with a diagnosis of specific behavioral health conditions in the prior 24 months, inpatient and outpatient health care service use in the 3 months and 4 to 12 months prior to the hospital discharge, and a predictive score of health care spending.[17] Each child discharged from ACH was matched to up to 5 beneficiaries from the potential comparison group. Three of the 543 (0.05%) children admitted to ACH during the intervention period were dropped because no comparison beneficiaries could be found within the same strata of exact matching variables (in particular, within the same age and date of discharge intervals). None of the 605 preintervention children admitted to ACH were dropped.

To implement the difference-in-differences design, we used a separate linear regression for each of the 3 outcomes. These regressions estimated the outcome as a function of treatment status (treatment or comparison), time period (pre- or postintervention cohort), and child characteristics defined at the time of hospital discharge. We adjusted for children's characteristics at hospital discharge to improve the statistical precision and account for any differences between the intervention and comparison groups after matching. The difference-in-differences impact estimate was captured by the coefficient for the interaction of time period and treatment status. In each model, we gave every treatment child a weight of one and every comparison child a weight of one divided by the number of comparison children in the matched set. We used hospital-level fixed effects to account for correlation in outcomes among children discharged from the same hospital, and used matched set fixed effects and bootstrapped standard errors to account for correlation in outcomes among children in each matched set. Each bootstrap sample was a random draw of matched sets; blocking on matched sets maintains balance across the bootstrap samples.

ETHICAL CONSIDERATIONS

The New England Institutional Review Board determined this evaluation was exempt from formal review.

RESULTS

IMPLEMENTATION EVALUATION

ACH planned to staff the parent partner intervention with 5.0 full-time equivalent (FTE) staff, but reached this staffing goal only once early in the program in 2013 (Fig. 1). ACH leaders attributed early staff turnover to hiring people who were unprepared for a position that required ongoing adaptation or who had exaggerated their experience with complex behavioral health needs. For most of the intervention period, there were 3.0 to 4.5 parent partner FTEs, except in the final 5 months when it dropped to 1.4 FTEs.

ACH reported that 96% of caregivers who were offered the intervention accepted. Parent partners noted strong engagement in the intervention by caregivers whose children were enrolled. A total of 1079 Medicaid-enrolled children were enrolled in the intervention from January 2013 through June 2015. During the period of our impact analysis (August 2013 through May 2015), 71% of Medicaid-enrolled children who were discharged from the ACH unit had been enrolled in the intervention.

The 2 most significant challenges to implementation reported by program leaders and staff were maintaining staffing and engaging behavioral health clinicians. Even when the program was at a relatively steady level of employed FTEs, parent partners would intermittently need to deal with behavioral health crises with their own children. Parent partners and program leaders reported that a relatively rigid scheduling approach made it challenging to maintain employment and meet goals for having a parent partner present every day of the week when the primary qualification of a parent partner was having a child with significant behavioral health care needs. The program adapted to this challenge by adopting a more flexible scheduling approach, including allowing parent partners to swap shifts with one another so that they could attend to their own children's behavioral health care needs as they arose.

Additionally, the parent partners and program leaders reported that some behavioral health clinicians were initially skeptical about working with the parent partners, a position that was new and fundamentally different from other existing roles in the inpatient psychiatric unit. However, the parent partners and leaders noted that as clinicians worked more frequently with parent partners on round and individually, they became more accepting and in some cases began to actively seek the opinions of parent partners as members of the care team. This challenge lessened over time but would sometimes arise again as the hospital hired new clinicians who were less familiar with the intervention.

IMPACT EVALUATION

A total of 540 Medicaid-enrolled children were discharged from ACH's inpatient psychiatric unit from August 2013 through May 2015 and met inclusion criteria for the study (Table 1). The intervention group was largely adolescent (mean age = 14 years; sd = 2), parent-reported white race (72%), and female gender (66%). Almost all (90%) were hospitalized for mood disorders, including depressive and bipolar disorders (90%) and most had also been diagnosed as having attempted suicide or inflicted self-injury within the 2 years prior to discharge (83%). The children in the intervention group were predicted to have very high medical expenses—5 times the national average for Medicaid-enrolled children as

Figure 1. *Parent partner staffing over time.*
Source: ACH quarterly reports to the Centers for Medicare & Medicaid Services.

Table 1. Characteristics of Intervention and Comparison Groups

Characteristic	Intervention Group (n = 540)	Comparison Group (n = 1,952)	Absolute Difference	Standardized Difference*
Demographic characteristics				
Age (y)	14.0	14.1	0.1	0.050
Male (%)	35.4	35.4	0	0
Race: white (%)	72.4	71.9	0.5	0.011
Ethnicity: Hispanic (%)	0.4	0.4	0.02	0.004
Reason for hospitalization				
Mood disorders (%)	90.2	90.2	0	0
Adjustment disorders (%)	4.4	4.4	0	0
Anxiety disorders (%)	2.6	2.6	0	0
Schizophrenia and other psychotic disorders (%)	1.7	1.7	0	0
Health status and chronic conditions				
Chronic Illness and Disability Payment System (CDPS) score[17]	5.06	4.97	0.09	0.029
Behavioral health conditions in prior 24 months (%)				
Mood disorders	98.7	98.4	0.3	0.030
Suicide and intentional self-inflicted injury	83.3	84.8	1.5	0.043
Anxiety disorders	83.1	82.5	0.6	0.015
Attention deficit, conduct, and disruptive behavior disorders	73.9	70.8	3.1	0.066
Adjustment disorders	36.5	35.9	0.6	0.012
Substance-related disorders	23.0	23.2	0.23	0.001
Alcohol-related disorders	8.7	9.6	0.9	0.030
Schizophrenia and other psychotic disorders	7.8	7.8	0.02	0.001
Personality disorders	7.4	7.0	0.4	0.017
Health service use in the prior 3 months (#/1000 children)				
Behavioral health hospitalizations	1,020	1,020	0.9	0.006
Nonbehavioral health hospitalizations	122.2	10.1	112.1	0.626
Behavioral health outpatient ED visits	257.4	259.9	2.5	0.005
Nonbehavioral outpatient health ED visits	548.1	546.7	1.5	0.002
Any outpatient visits for behavioral health in the prior 12 months (%)	86.5	85.6	0.9	0.026
Nonbehavioral health hospitalizations, 4 − 12 months prior	18.5	17.5	1.0	0.008
Medicaid-related characteristics				
Managed care (vs fee-for-service) (%)	89.8	89.7	0.07	0.002
Qualified based on disability (%)	10.3	10.9	0.6	0.021

Sources: Analysis by Mathematica of Ohio Medicaid claims data provided by the Ohio Colleges of Medicine Government Resource Center.

Notes: Characteristics are measured at the date of the inpatient discharge from ACH or comparison hospitals that led to a child's assignment to the treatment or comparison group (the child's enrollment or pseudoenrollment date). We used behavioral health CCS categories from the Agency for Healthcare Research and Quality's Health Care Cost and Utilization Project to define the types of hospital stays and types of behavioral health conditions. The postintervention cohort included children whose enrollment or pseudoenrollment dates were from August 1, 2013, to May 31, 2015. The comparison group means were weighted based on the number of matched comparisons per treatment child.

*Difference in means between the treatment and comparison groups divided by the standard deviation of the variable, which is pooled across the treatment and comparison groups.

indicated by a Chronic Illness & Disability Payment System (CPDS) score of 5.06, compared to a standardized national average of 1.0. Almost all of the children (90%) were enrolled in Medicaid Managed Care plans rather than fee-for-service Medicaid.

The postintervention comparison group (n = 1952 children) was well matched to the treatment group (<0.1 standardized differences) on all baseline characteristics except one (Table 1). Specifically, the treatment group children had a higher rate of nonbehavioral health-related hospital admissions in the 3 months before their qualifying admission than the comparison children (rate of 122.2 per 1000 children [sd = 333.5] for the treatment group vs 10.1 [sd = 10.1] for the comparison). The preintervention treatment and comparison groups were similarly well balanced on all characteristics except nonbehavioral health-related admissions in the prior 3 months (Appendix Table 1). However, in both cohorts, the treatment and comparison groups were well balanced on nonbehavioral health-related admissions in the 4- to 12-month period prior to enrollment in the intervention (<0.1 standardized differences). Furthermore, we adjusted for baseline characteristics in our regression models.

In unadjusted results, there were trends within the intervention group toward improvements in all outcomes (Table 2). However, we did not find a statistically significant difference in follow-up outpatient behavioral health visits (adjusted treatment to comparison difference +3% [90% CI = −2%, +9%], P = .15), readmissions (+5% [−33%, +43%], P= .58), or behavioral health ED visits

Table 2. Unadjusted Outcomes at Baseline and Postintervention for the Parent Partner Intervention

	Intervention Group		Comparison Group	
Outcome (Units)	Baseline (n = 605)	Post (n = 540)	Baseline (n = 2249)	Post (n = 1952)
Any outpatient behavioral health follow-up visit within 30 days of discharge (percentage)	82.2	84.4	84.2	83.6
Any readmission with a behavioral health primary diagnosis within 60 days of discharge (percentage)	12.1	10.2	12.7	11.2
Number of outpatient behavioral health ED visits within 90 days of discharge (#/1000 children)	185.1	163.0	120.7	150.8

Source: Analysis by Mathematica of Ohio Medicaid claims data provided by the Ohio Colleges of Medicine Government Resource Center. ED indicates emergency department.

(−15% [−44%, +14%], P= .20; Fig. 2). The large point estimate for behavioral health ED visits was driven by a combination of decreases in the outpatient ED visit rates from the pre- to postintervention period within the treatment group, and an increase within the comparison group (Table 2).

DISCUSSION

The parent partner intervention represents an innovative application of peer support to improving care for children hospitalized for behavioral health conditions.[8−12,18,19] The available evidence from the awardee's reports and on-site interviews suggests that ACH largely implemented the intervention as intended with the exception of not meeting goals for staffing. Program administrators noted that some parent partners left during the final 5 months when staffing dropped to 1.4 FTEs because there was a lack of clarity about whether the organization would continue to support the positions after the federal funding ended.

Lessons for organizations considering implementing an intervention like ACHs include: 1) targeting patients discharged from an inpatient behavioral health unit can be effective in identifying a steady flow of patients with similar needs who are at high risk of behavioral health ED visits and readmissions, creating substantial opportunities to reduce these events; 2) making peer partners a hired position, and providing robust training in motivational interviewing and how to communicate best with caregivers and behavioral health clinicians can aid substantially in implementing the intervention as intended; 3) programs might face challenges in hiring and retaining experienced peer partners over time, and in getting hospital clinicians to buy into the value peer partners add. These challenges can be addressed, in part, by vetting candidates for peer partner positions well, allowing flexibility for peer partners to attend their own

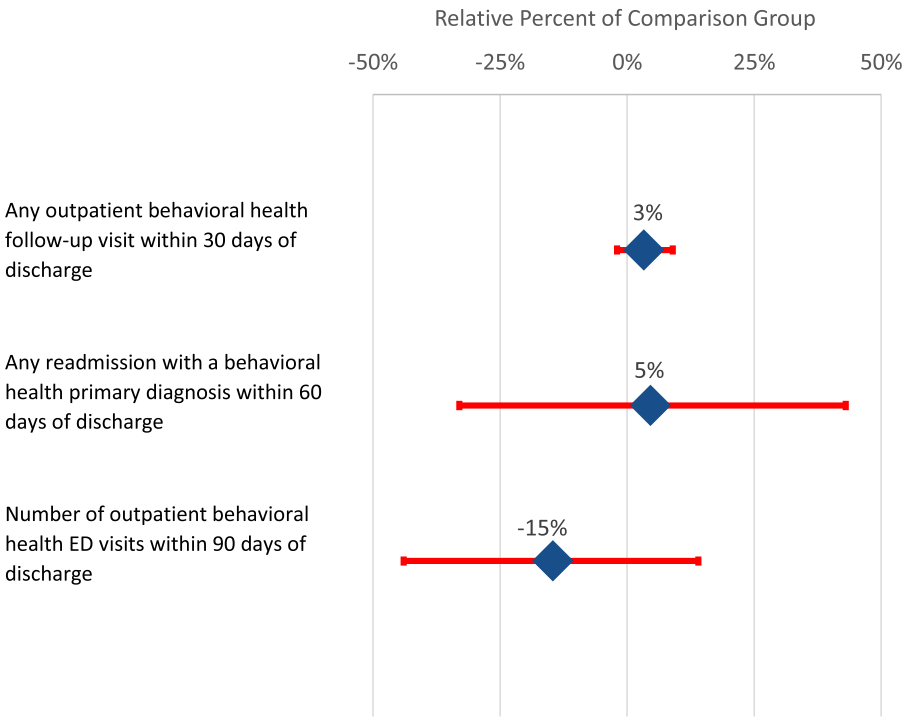

Figure 2. *Parent partner intervention's impact on health care use (regression adjusted difference-in-differences estimates). Note: Figure shows point estimate as a relative percent of the comparison group with a 90% confidence interval.*

children's behavioral health needs, building rapport between peer partners and hospital staff through frequent face-to-face communication (eg, participating in hospital rounds), and having senior leadership champion the program to hospital clinicians through multiple channels of communication. The challenges experienced with clinician buy-in warrant attention and research in future programs. For example, program leaders may need to incorporate lessons from team science and attend to the development of team cognition—a mental model shared among all members of the clinical team—in which team members and the patient and patient's family identify the team, rather than individual professionals, as the fundamental unit providing care.[20]

Although we did not find statistically significant improvements in health care use among children in the intervention, the trends toward improvements around 2 of the 3 outcomes suggest additional research on this intervention would be beneficial, using a longer study period for the intervention at ACH or implementation at multiple sites. The magnitude of reduction in ED visits, although not statistically significant, was especially notable. One potential mechanism for the observed decrease in behavioral health ED use could have been an increased rate of outpatient behavioral health visits after discharge. However, we found no impact on these visits. Because we were unable to test other possible mechanisms for reducing ED use directly, we can only speculate, based on our implementation study, that if there truly was a reduction in ED visits, it might have been driven by greater caregiver self-efficacy promoted by the support of parent partners during and in some cases after admission. It is possible that some of the implementation challenges we identified, including inconsistent staffing levels, staff turnover and early difficulties obtaining hospital clinician buy-in to the program, contributed to the lack of statistically significant effects.

The results of this study should be interpreted in the context of several important limitations. First, this was a single site study, and the hospital and community context of implementation at other sites could have important influences on the likelihood of success of the intervention. Unfortunately, due to data limitations, we were unable to include the additional NCH parent partner intervention in our study, and we did not have additional data on the context of the comparison hospitals, such as staffing and average length of stay. Second, we did not have any measures of the content of parent partners' interactions with caregivers or clinicians, or detailed measures of fidelity to the intended model, to understand the implementation of the intervention on a more granular level. Third, we only had access to administrative and claims data to construct outcomes for the intervention and comparison groups. Peer-support interventions have potentially positive effects on other outcomes such as child and family functioning, caregiver coping, and health care spending that we were unable to measure. Fourth, as reflected in the wide confidence intervals, this single site study was underpowered for 2 of the 3 health service use outcomes (behavioral health readmissions and outpatient behavioral health ED visits).

In conclusion, this study suggests that caregiver peer support is a promising intervention in inpatient child behavioral health settings that should continue to be explored and evaluated for impacts on health service use, health care spending, and child and family functioning.

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Appendix Table 1. Baseline Characteristics of the Preintervention Cohort

Characteristic	Treatment Group (n = 605)	Comparison Group (n = 2,249)	Difference	Standardized Difference*
Demographic characteristics				
Age (y)	13.4	13.4	0.05	0.017
Male (%)	47.8	47.8	0	0
Race: white (%)	66.6	67.0	0.4	0.009
Ethnicity: Hispanic (%)	0.3	0.4	0.07	0.011
Reason for hospitalization				
Adjustment disorders (%)	1.5	1.5	0	0
Anxiety disorders (%)	1.7	1.7	0	0
Mood disorders (%)	90.4	90.4	0	0
Schizophrenia and other psychotic disorders (%)	2.6	2.6	0	0
Health status and chronic conditions				
Chronic Illness and Disability Payment System (CDPS) score[17]	5.10	5.09	0.010	0.004
Behavioral health conditions measured in prior 24 months (%)				
Adjustment disorders (%)	30.4	29.7	0.7	0.016
Anxiety disorders (%)	62.8	61.2	1.6	0.032
Attention deficit, conduct, and disruptive behavior disorders (%)	75.4	74.7	0.6	0.014
Disorders usually diagnosed in infancy, childhood, or adolescence	14.9	14.0	0.9	0.025
Mood disorders (%)	98.8	98.0	0.8	0.092
Personality disorders (%)	4.0	3.5	0.5	0.025
Schizophrenia and other psychotic disorders (%)	12.1	12.1	0.1	0.002
Alcohol-related disorders (%)	6.1	6.4	0.3	0.011
Substance-related disorders (%)	20.5	21.3	0.8	0.019
Suicide and intentional self-inflicted injury	33.9	34.1	0.2	0.004
Service use in the prior 3 months (#/1000 beneficiaries)				
Behavioral health hospitalizations	1,015	1,008	6.4	0.054
Nonbehavioral health hospitalizations	95.9	28.5	67.4*	0.355
Behavioral health outpatient ED visits	209.9	209.0	0.9	0.002
Nonbehavioral outpatient health ED visits	522.3	494.4	27.9	0.034
Any outpatient visits for behavioral health in the prior 12 months (%)	90.1	90.2	0.1	0.004
Medicaid-related characteristics				
Managed care (%)	75.4	76.6	1.3	0.030
Disabled (%)	9.1	9.4	0.3	0.010

Sources: Analysis by Mathematica of Ohio Medicaid claims data provided by the Ohio Colleges of Medicine Government Resource Center.

Notes: Characteristics are measured at the date of the inpatient discharge from ACH or comparison hospitals that led to a child's assignment to the treatment or comparison group (the child's enrollment or pseudoenrollment date). We used behavioral health CCS categories from the Agency for Healthcare Research and Quality's Health Care Cost and Utilization Project to define the types of hospital stays and types of behavioral health conditions. The preintervention cohort included beneficiaries whose enrollment or pseudoenrollment dates were October 1, 2010, to December 31, 2012. The comparison group means were weighted based on the number of matched comparisons per treatment child.

*Difference in means between the treatment and comparison groups divided by the standard deviation of the variable, which is pooled across the treatment and comparison groups.