

Mental Health Services Utilization and Expenditures Among Children Enrolled in Employer-Sponsored Health Plans

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abstract

BACKGROUND AND OBJECTIVES: Mental illness in children increases the risk of developing mental health disorders in adulthood, and reduces physical and emotional well-being across the life course. The Mental Health Parity and Addiction Equity Act (MHPAEA, 2008) aimed to improve access to mental health treatment by requiring employer-sponsored health plans to include insurance coverage for behavioral health services.

METHODS: Investigators used IBM Watson/Truven Analytics MarketScan claims data (2007–2013) to examine: (1) the distribution of mental illness; (2) trends in utilization and out-of-pocket expenditures; and (3) the overall effect of the MHPAEA on mental health services utilization and out-of-pocket expenditures among privately-insured children aged 3 to 17 with mental health disorders. Multivariate Poisson regression and linear regression modeling techniques were used.

RESULTS: Mental health services use for outpatient behavioral health therapy (BHT) was higher in the years after the implementation of the MHPAEA (2010–2013). Specifically, before the MHPAEA implementation, the annual total visits for BHT provided by mental health physicians were 17.1% lower and 2.5% lower for BHT by mental health professionals, compared to years when MHPAEA was in effect. Children covered by consumer-driven and high-deductible plans had significantly higher out-of-pocket expenditures for BHT compared to those enrolled PPOs.

CONCLUSIONS: Our findings demonstrate increased mental health services use and higher out-of-pocket costs per outpatient visit after implementation of the MHPAEA. As consumer-driven and high-deductible health plans continue to grow, enrollees need to be cognizant of the impact of health insurance benefit designs on health services offered in these plans.



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Child and adolescent mental illness negatively affects the health and well-being of children and can have long-term effects across the life course. In the United States, 1 in 5 children have a diagnosable mental health condition. Early onset of serious emotional disorders increases the risk of mental health problems in adulthood, poor physical health, reduced psychological well-being, and greater economic burden.^{1,2} The prevalence of mental health disorders in children and adolescents is substantial. The National Comorbidity Survey Replication: Adolescent Supplement estimates the lifetime prevalence of anxiety disorders, behavior disorders, and mood disorders for adolescents aged 13 to 18 years to be 31.9%, 19.1%, and 14.3%, respectively.^{3,4}

Attention-deficit/hyperactivity disorder (ADHD) is one of the most prevalent chronic mental health conditions among children and adolescents.^{1,3,4} Boys have a greater prevalence of ADHD than girls,⁴ with the average age of onset at 7 years.⁵ The majority of childhood ADHD persists into young adulthood,^{6,7} resulting in continued mental health service expenditures and decreased quality of life.⁸ ADHD has been linked to difficulties in education attainment, family and peer relationships, and additional comorbid mental health and/or neurodevelopmental disorders.⁸⁻¹⁰ Compared with children with other mental health diagnoses, children with ADHD have higher rates of mental health service use,^{6,9} and the cost associated with outpatient mental health services for children with ADHD is 11 times higher.⁶

The past decade has seen an increase in mental health service use for childhood mental health disorders.^{11,12} Mental health treatment expenditures for children 0 to 17 years of age are also on the rise.^{13,14} Although there has been an increase in mental health services use among

children and adolescents, those in need of mental health services experience gaps in access to care. A national survey showed that for children and adolescents aged 13 to 18 years with a mental health disorder, only 36.2% received needed services.¹⁵ In addition, data from the National Survey of Children's Health illustrate that among 6- to 17-year-old children and adolescents who had ever been diagnosed with an emotional or behavioral condition, almost half (46.9%) did not receive mental health treatment.¹⁶ Younger children are less likely to receive needed mental health treatment or counseling. For children who needed mental health treatment or counseling, 56.6% of those aged 0 to 5 years, 37.4% of those aged 6 to 11 years, and 35.9% of those aged 12 to 17 years did not get mental health services.¹⁷ Although these surveys vary in sample characteristics and the range of the mental health services provided, the data demonstrate major gaps in mental health services delivery for children and adolescents who need them, especially for children in their early developmental years.

Health insurance coverage influences access to care and how individuals use available health care services. From 2008 to 2013, >53% of children aged 0 to 5 years and >61% of children aged 6 to 18 years were enrolled in private health insurance, which includes employer sponsored plans, TRICARE, and individual coverage.¹⁸ The Patient Protection and Affordable Care Act (ACA) prioritizes the expansion of prevention and wellness programs, enhanced health care infrastructure, and the expansion of insurance coverage. Building on the Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA),¹⁹ the ACA extended federal parity protections and expanded coverage for mental health services. All new small group and individual market plans

must provide mental health and substance use disorder coverage at parity with medical benefits.²⁰ Although health insurance coverage is regarded as a critical determinant for accessing health care, few studies have examined how early childhood mental health services use and costs vary by type of employer-sponsored health plan. This study sought to examine mental health services use and costs among children 3 to 17 years of age enrolled in employer-sponsored health plans. Specifically, we aimed to: (1) describe the distribution of mental illness; (2) describe the trends in use and out-of-pocket spending; and (3) examine the overall effect of the MHPAEA on mental health services use and out-of-pocket spending.

METHODS

Using commercial claims and encounters data, we assessed differences in mental health services use and out-of-pocket spending by health plan type for children (3–17 years of age) with a mental health diagnosis.

Data

The IBM Watson/Truven Analytics MarketScan commercial claims and encounters data from 2007 to 2013 were used for this study.²¹ Data consist of medical claims from active employees, their spouses, dependents, early retirees, and Consolidated Omnibus Budget Reconciliation Act health benefit continuees insured by employer-sponsored plans (ie, persons not eligible for Medicare).²¹ Individuals in the commercial claims and encounters data set are covered under fee-for-service and fully and partially capitated plans, including indemnity plans, health maintenance organizations (HMOs), and preferred and exclusive provider organizations.²¹ Medical claims are linked to person-level demographic

and enrollment information (enrollment and disenrollment dates, member days), inpatient and outpatient medical information, financial information, including payments to providers and hospitals, and outpatient prescription drug claims.²¹

Sample

We combined claims and encounters data from 2007 to 2013 for all privately insured children aged 3 to 17 years based on their unique identifiers ($N = 22\,922\,630$). Children were included in the study if they were enrolled in a preferred provider organization (PPO) plan, HMO plan, or a consumer-driven health plan (CDHP) or high-deductible health plan (HDHP) and if they had ≥ 1 claims with a primary diagnosis of mental health disorder. The longitudinal database consisted of 19 911 149 children aged 3 to 17 years enrolled in a PPO or HMO plan or a CDHP or HDHP, representing 86.9% of all privately insured children in the database. To identify children with mental health diagnoses, we used the Clinical Classification Software (CCS), which was developed as part of the Healthcare Cost and Utilization Project under the Agency for Healthcare Research and Quality.²² Specifically, we used single-level CCS to classify primary diagnoses of mental health disorders based on *International Classification of Diseases, Ninth Revision, Clinical Modification* codes into 15 general categories. Our final study sample was comprised of a total of 2 159 019 children aged 3 to 17 years enrolled in a PPO or HMO plant or a CDHP or HDHP having ≥ 1 primary mental health diagnosis.

Measures

Outcome Variables

The 2 main outcome variables were: (1) annual use of behavioral health therapy (BHT) operationalized as the

average total number of outpatient BHT visits per child with relevant mental health diagnosis in a given year, and (2) annual out-of-pocket spending on BHT operationalized as average out-of-pocket spending, including deductibles, coinsurance, and copayments for all covered services per BHT visit. Two types of BHT services were analyzed separately: outpatient BHT provided by a mental health physician (ie, BHT provided by a physician in a mental health outpatient facility), and outpatient BHT provided by a mental health professional (ie, clinical psychologists, licensed clinical social workers, and licensed professional counselors). Physician and professional BHT services are used in this study because they are clinically relevant for addressing mental illness, and the provision of services by either provider has implications for the types of treatment and eventual costs. Specifically, our analysis distinguishes these 2 classifications of mental health providers because mental health physicians (eg, child/adolescent psychiatrists, mental health nurse practitioners) often can provide specialized diagnosis and treatment and can prescribe medication, whereas mental health professionals often provide psychological assessments and therapy, but generally cannot prescribe medications.

Covariates

Mental health diagnosis: The distribution of mental health diagnoses indicates that 45.57% to 47.13% of children aged 3 to 17 years with at least 1 mental health condition across the data years (2007–2013) in the commercial claims and encounters database were diagnosed with ADHD (see Supplemental Tables 4 and 5 for the distribution of mental health disorders). A 3-category primary covariate, “children with only ADHD diagnoses” (ADHD only), “children

with diagnoses of ADHD and other mental health disorders” (ADHD with comorbidity), and “children with diagnoses of mental health disorder other than ADHD” (other mental health diagnoses), was used. A child’s placement in a multiple diagnoses category was based on the primary diagnoses appearing in all mental health-related claims for a patient > 7 years of age. If a child had an ADHD diagnosis and other mental health comorbidity, the child was placed in the “ADHD with comorbidity” category. Similarly, if a child had ≥ 1 mental health diagnosis but no ADHD diagnosis, then the child was placed in the “other mental health diagnoses” category.

The MHPAEA: The MHPAEA went into effect on January 1, 2010. Claims occurring between 2007 and 2009 were categorized as “pre-Parity Act.” Similarly, claims occurring between 2010 and 2013 were categorized as “post-Parity Act.”

Health insurance plan type: The study focused on 3 categories of health insurance plan types: PPO and HMO plans and CDHPs or HDHPs. Throughout each given year, a child’s health plan type was coded as the designated plan type at the beginning of the calendar year (January 1).

Other demographic covariates in the analysis included children’s age and sex.

Statistical Analysis

We used descriptive statistics to present the distribution of our study sample. Based on the specific distribution of the outcome variables, we used 2 sets of modeling strategies in the multivariate analysis to examine the association between 3 key covariates, mental health diagnoses, MHPAEA, and health insurance plan type, and the outcome variables, mental health service use and out-of-pocket costs, controlling for age and sex. A multivariate Poisson regression

model was used to assess our first outcome, mental health service use, which was operationalized as the average annual total number of BHT visits. For the second outcome variable, average out-of-pocket spending per each BHT visit, we applied logarithmic transformation to transform the data to be normally distributed. We then used a multivariate linear regression on the log-transformed outcome variable. In all models, we controlled for the clustering of children that were enrolled in 1 plan for >1 year.

Data were analyzed by using SAS version 9.4 statistical software (SAS Institute, Inc, Cary, NC). This study was part of a larger early childhood mental health study approved by Boston University Medical Center's Institutional Review Board.

RESULTS

Sample Characteristics

As shown in Table 1, the study sample consisted of 2 159 019 children with a primary mental health diagnosis (57.38% boys; 42.62% girls). The mean age of the children was 11.13 years (SD, 4.13). Half (50.19%) of the children were between ages 12 and 17, 42.62% were aged 5 to 11 years, and 7.19% were ages 3 to 4 years. Almost three-quarters (72.99%) were enrolled in a PPO plan, 17.26% were enrolled in an HMO plan, and 9.75% were enrolled in either a CDHP or a HDHP. Boys were more likely to be diagnosed with a mental health disorder compared with females. Findings show that boys comprised 71.06% of children with an ADHD diagnosis only and 66.31% of children with ADHD with comorbidity, consistent with previous research.⁴ The mean number of visits for outpatient BHT services increased from “pre-Parity Act” (2007–2009) to “post-Parity Act” (2010–2013) for all children, regardless of mental health diagnosis. Specifically, the annual total number

of visits increased from 4.80 (SD, 5.47) to 5.86 (SD, 8.60) per child for mental health physician BHT and from 7.04 (SD, 7.46) to 7.22 (SD, 9.01) per child for mental health professional BHT. Similarly, the average annual out-of-pocket spending per behavioral health services visit increased between the 2 time frames. The average out-of-pocket costs for mental health physician visits increased from \$32.07 (SD, \$39.81) to \$32.21 (SD, \$61.25) per visit; and mental health professional expenditures increased from \$28.78 (SD, \$32.22) to \$37.76 (SD, \$158.30). Between 2010 and 2013, for both types of services, children with ADHD only had higher out-of-pocket costs (\$34.44 [SD, \$74.79] for mental health physician BHT and \$39.93 [SD, \$190.60] for mental health professional BHT). Compared with children with an ADHD diagnosis with comorbidity and children with other mental health diagnoses, our study shows that children with ADHD had lower annual average visits for mental health physician BHT (3.92 [SD, 5.00]) and for mental health professional BHT (5.14 [SD, 6.55]).

Factors Associated With Use of Outpatient BHT

Our study shows a comparatively higher number of visits between 2010 and 2013 for children controlling for age, sex, insurance type, and mental health condition. As shown in Table 2, the total number of physician outpatient BHT visits in 2007 to 2009 was 17.1% lower than the years (2010–2013) after the MHPAEA. Similarly, the number of professional outpatient BHT visits between 2007 and 2009 was 2.5% lower than the years post-MHPAEA (2010–2013). Our results demonstrate that the MHPAEA had a statistically significant positive association with the use of mental health services. Age is significantly associated with BHT service use. For every year increase in age, the

total number of visits for services provided by mental health physicians is reduced by 1.0%, whereas the total number of visits to mental health professionals increases by 1.1%. Sex is also associated with BHT service use, as shown in Table 2. For physician BHT and professional BHT services, the annual total number of visits for boys was 2.1% and 3.2% less than for girls, respectively.

Study findings show an association between mental health diagnoses and BHT outpatient use. For physician outpatient BHT, when compared with children enrolled in PPO plans, children enrolled in HMO plans had 5.5% fewer visits, and children enrolled in CDHPs/HDHPs had 4.6% more visits, controlling for all other variables. For physician outpatient BHT services, the annual total number of visits by children with only an ADHD diagnosis was 36.1% fewer than for those with mental health diagnoses other than ADHD. The number of visits by children with ADHD with comorbidities is not significantly different from children with other mental health diagnoses. For professional outpatient BHT services, the annual total number of visits by children with an ADHD-only diagnosis is 23.5% fewer than for those with mental health diagnoses other than ADHD. Compared with those with mental health diagnoses other than ADHD, children with ADHD with comorbidities have 11.5% more visits to professional outpatient BHT services, controlling for all other variables.

Factors Associated With Out-of-Pocket Spending on Outpatient BHT

As shown in Table 3, controlling for age, sex, type of health insurance, and mental health diagnosis the average out-of-pocket spending for per visit between 2007 and 2009 was 5.0% higher than between 2010 and 2013 for physician outpatient BHT. For professional BHT, the average out-of-pocket spending per visit between

TABLE 1 Demographic Characteristics and Distribution of Use and Out-of-Pocket Spending, by Mental Health Diagnoses

	ADHD Only (N = 590 093)		ADHD With Comorbidity (N = 375 346)		Other Mental Health Diagnoses ^a (N = 1 193 580)		Total (N = 2 159 019)	
	N	%	N	%	N	%	N	%
Sex ^b								
Girl	170 762	28.94	126 457	33.69	623 061	52.20	920 280	42.62
Boy	419 331	71.06	248 889	66.31	570 519	47.80	1 238 739	57.38
Age, y ^{b,c}								
3–4	20 343	3.45	24 558	6.54	110 317	9.24	155 218	7.19
5–11	328 944	55.74	187 604	49.98	403 701	33.82	920 249	42.62
12–17	240 806	40.81	163 184	43.48	679 562	56.93	1 083 552	50.19
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	10.60	3.66	10.51	3.87	11.58	4.37	11.13	4.13
	N	%	N	%	N	%	N	%
Health insurance ^b								
PPO	453 172	74.90	283 354	71.03	880 082	72.68	1 616 608	72.99
HMO	93 241	15.41	73 637	18.46	215 440	17.79	382 318	17.26
CDHP/HDHP	58 638	9.69	41 954	10.52	115 341	9.53	215 933	9.75
No. of children used ^d								
2007–2009								
Physician BHT services	36 454	18.35	67 514	40.31	94 509	23.87	198 477	26.04
Professional BHT services	26 878	13.53	75 770	45.24	152 642	38.55	255 290	33.50
2010–2013								
Physician BHT services	71 594	16.00	138 610	44.64	216 661	24.74	426 865	26.12
Professional BHT services	55 766	12.46	151 899	48.92	325 692	37.18	533 357	32.64
Average annual use of outpatient BHT ^b	Mean	SD	Mean	SD	Mean	SD	Mean	SD
2007–2009								
Physician BHT services	3.52	3.68	5.23	5.56	4.98	5.89	4.80	5.47
Professional BHT services	5.65	6.91	7.63	7.75	7.00	7.38	7.04	7.46
2010–2013								
Physician BHT services	3.92	5.00	6.21	8.09	6.28	9.69	5.86	8.60
Professional BHT services	5.14	6.55	7.96	9.05	7.24	9.29	7.22	9.01
Average annual out-of-pocket spending per outpatient BHT visit ^b								
2007–2009								
Physician BHT services	33.63	39.61	30.01	36.10	32.94	42.28	32.07	39.81
Professional BHT services	28.70	34.55	27.68	32.80	29.33	36.46	28.78	32.22
2010–2013								
Physician BHT services	34.44	74.79	31.26	64.42	32.08	53.72	32.21	61.25
Professional BHT services	39.93	190.60	36.16	155.52	38.14	153.41	37.76	158.30

^a Includes all patients with a mental health diagnosis other than ADHD, based on CCS.

^b Analysis of variance (continuous variable) or χ^2 (categorical variable) tests were used to compare the difference with regards to sex, age, health insurance types, average annual use of mental health outpatient services, and out-of-pocket spending per visit on mental health outpatient services among 3 mental health diagnostic groups: ADHD only, ADHD with comorbidities, and mental health diagnoses other than ADHD. $P < .0001$.

^c Patient's age when they first appear in the database.

^d Percentage is calculated as the number of children that used BHT in 2007 to 2009 (2010 to 2013) over the total number of children with this category of mental health condition in 2007 to 2009 (2010 to 2013).

2007 and 2009 was 4.0% lower than between 2010 and 2013.

Age is significantly associated with outpatient BHT service expenditures. For every year increase in age, out-of-pocket spending per visit is reduced by 0.6%. This finding is evident for both physician and mental health professional outpatient BHT. Sex is also associated with BHT service expenditure, as shown in our model. For physician BHT and professional

BHT services, out-of-pocket spending per visit for boys was 2.7% and 2.5% higher than for girls, respectively.

Compared with those enrolled in PPO plans, children enrolled in HMO plans paid 42.1% less for each physician outpatient BHT session, and children enrolled in CDHPs or HDHPs paid 8.9% more, controlling for all other variables. For professional outpatient BHT services, compared with those enrolled in PPO plans, children

enrolled in HMO plans paid 20.1% less for each professional outpatient BHT session, whereas costs for children enrolled in CDHPs or HDHPs were 19.9% more, controlling for all other variables.

We examined the association between mental health diagnoses and expenditures on BHT services. For physician outpatient BHT services, average out-of-pocket spending per visit by children with ADHD only

was 2.4% higher than for those with mental health diagnoses other than ADHD, controlling for all other variables. Average out-of-pocket spending per physician outpatient BHT by children with ADHD with comorbidities was 7.5% less than for those with mental health diagnoses other than ADHD, controlling for all other variables. For professional outpatient BHT services, average out-of-pocket spending per visit by children with ADHD only was not significantly different from those with mental health diagnoses other than ADHD. Average out-of-pocket spending per professional outpatient BHT by children with ADHD with comorbidities was 6.6% less than for those with mental health diagnoses other than ADHD, controlling for all other variables.

DISCUSSION

This study is among the first to examine the distribution of mental illness, mental health services use, and out-of-pocket spending among children enrolled in employer-sponsored health plans. Our findings show diagnoses of mental health disorders among children as early as 3 to 4 years of age and larger proportions of children being diagnosed with mental illness with increasing age. The average age of diagnosis was 11 years and boys were more likely to be diagnosed with mental illness than girls. ADHD is the most prevalent mental health diagnosis among children. Our study also shows that the average number of outpatient visits and annual out-of-pocket spending for BHT service visits have increased over time.

Multivariate results demonstrate that having mental health coverage at parity with medical coverage is positively associated with mental health services use. Specifically, the number of outpatient mental

TABLE 2 Multivariate Poisson Regression for Average Annual Total Number of Visits to Mental Health Physician or Mental Health Professional Outpatient BHT

	Mental Health Physician Outpatient BHT		Mental Health Professional Outpatient BHT	
	Rate Ratio	95% Confidence Interval	Rate Ratio	95% Confidence Interval
Age	0.990*	0.988–0.991	1.011*	1.010–1.012
Sex				
Girl		(reference)		(reference)
Boy	0.979*	0.971–0.986	0.968*	0.963–0.974
Year				
2010–2013		(reference)		(reference)
2007–2009	0.829*	0.823–0.834	0.975*	0.970–0.980
Health insurance				
PPO		(reference)		(reference)
HMO	0.945*	0.936–0.954	0.980*	0.973–0.987
CDHP/HDHP	1.046*	1.030–1.063	0.969*	0.960–0.978
Mental health condition				
Other mental health diagnoses		(reference)		(reference)
ADHD only	0.639*	0.633–0.646	0.765*	0.757–0.773
ADHD with comorbidities	1.001	0.992–1.009	1.115*	1.108–1.122

* $P < .05$.

TABLE 3 Multivariate Linear Regression for Average Out-of-Pocket Spending per Visit to Mental Health Physician or Mental Health Professional Outpatient BHT

	Mental Health Physician Outpatient BHT		Mental Health Professional Outpatient BHT	
	Rate Ratio	95% Confidence Interval	Rate Ratio	95% Confidence Interval
Age	0.994*	0.993–0.994	0.994*	0.994–0.994
Sex				
Girl		(reference)		(reference)
Boy	1.027*	1.022–1.031	1.025*	1.021–1.029
Year				
2010–2013		(reference)		(reference)
2007–2009	1.050*	1.045–1.054	0.960*	0.956–0.963
Health insurance				
PPO		(reference)		(reference)
HMO	0.579*	0.576–0.583	0.799*	0.794–0.803
CDHP/HDHP	1.089*	1.080–1.098	1.199*	1.192–1.206
Mental health condition				
Other mental health diagnoses		(reference)		(reference)
ADHD only	1.024*	1.018–1.030	1.002	0.995–1.008
ADHD with comorbidities	0.925*	0.920–0.929	0.934*	0.929–0.938

* $P < .05$.

health visits increased from 2010 to 2013, years concurrent with the implementation of the MHPAEA. Our findings also show that children enrolled in CDHPs or HDHPs have more visits to physician outpatient BHT services and fewer visits to other mental health professionals

than children enrolled in HMO and PPO plans. Our results illustrate that children with ADHD with comorbidities have more mental health needs and thus have more visits to a mental health physician in outpatient settings. Post-Parity Act, out-of-pocket spending for

mental health physician BHT significantly decreased, whereas out-of-pocket spending for mental health professional BHT significantly increased. Average out-of-pocket spending for the latter exceeded the former. Although we have observed an increasing trend of use for both types of BHT services post-MHPAEA, future research could examine whether the increasing expenditure for professional BHT would limit use, in particular for children enrolled in CDHPs/HDHPs, who are shown in this study to have ~20% higher out-of-pocket spending for professional BHT than children enrolled in PPO plans.

Our study results surprisingly do not show disproportionate differences in the use of behavioral health services among children enrolled in CDHP/HDHP compared with HMO and PPO plans. Given the high out-of-pocket costs associated with CDHPs/HDHPs, we anticipated less use of behavioral health services among children with a mental health diagnosis who were enrolled in CDHPs/HDHPs compared with those enrolled in HMO and PPO plans; particularly because behavioral health visits can be over extended periods of time based on diagnosis, chronicity, and treatment plan. This study affirms that children enrolled in CDHPs/HDHPs do in fact pay much more for health services. Specifically, CDHP/HDHP enrollees paid 9% and 20% more than PPO enrollees for physician and professional behavioral health treatment, respectively. For families of a child with severe and/or chronic mental illness, these high out-of-pocket costs may contribute to family financial constraints.

The high use of physician BHT among children in CDHPs and HDHPs despite high costs is an interesting finding. This finding could be attributed to several factors, such as: children enrolled in CDHP/HDHP having more severe mental health conditions

that led to higher use; or families of these CDHP/HDHP-enrolled children having less financial constraints that often impact use, among other factors. Additional studies are needed to understand these use patterns. Future studies could introduce methods, such as propensity score matching to control for disease severity, measure family level financial burden, and examine behavioral health benefit design plan features for specific CDHPs/HDHPs and how these features differ from PPO and HMO plans. In addition, our study examined use and out-of-pocket payments for the 2 most commonly used behavioral health services for children with mental illness. Future studies could additionally examine whether there are any differences in the use and costs of other mental health services, such as inpatient treatment services. Therefore, the finding that there are no disproportionate differences in behavioral health services use should be viewed with caution because the costs associated with behavioral health services are substantially higher for children enrolled in CDHPs/HDHPs.

Limitations

The claims databases are based on a large convenience sample and are not representative of a random sample; therefore, the findings may not generalize well to other populations. The data represent large firms and therefore small and medium firms are not well represented. Because commercial claims and encounters data do not include race and ethnicity data, this study does not shed light on disparities in access to mental health treatment by race and ethnicity. The commercial claims and encounters database does not include detailed information on health plan features; therefore, we were not able to examine the impact of specific plan features on use and expenses of BHT services. In addition,

children who switched plans or those with intermittent coverage were not accounted for. Future research should not only examine differences in health use and costs, but also the quality of mental health care for these children. Lastly, our study did not include government-sponsored health plans. Future studies are needed to assess these patterns among children enrolled in government insurance plans. Despite these limitations, this study contributes to the limited knowledge on early childhood mental health, specifically among children enrolled in employer-sponsored health plans.

Implications for Policy and Practice

Mental health service delivery systems and the types and levels of insurance coverage influence access to and the use of services. CDHPs and HDHPs are among the fastest growing health plan options available in individual and small group markets in the Health Insurance Exchange. CDHPs encourage consumers to have greater control of their health care decision-making. However, increased health care costs for employees enrolled in CDHPs may reduce the use of health services for children. Although this study did not show disproportionate differences in the use of behavioral health services among children with a mental health diagnosis who were enrolled in CDHPs/HDHPs compared with those enrolled in HMO and PPO plans, it is important to note the high costs associated with CDHPs/HDHPs and the potential implications of these costs on chronic conditions, such as mental illness, over the life span. It is imperative to not only identify mental illness in early childhood, but also to provide early intervention and treatment, thus reducing the health, social, and economic burdens of untreated mental illness in childhood and across the life course.

Key provisions of the ACA ensure that plans do not deny coverage or charge more to individuals who have traditionally been excluded from coverage due to preexisting conditions, such as mental illness.²³ The ACA also increases access to care by ensuring that health plans cover preventive services, such as screenings and behavioral health assessments, at no cost and prohibiting spending caps. As more individuals obtain coverage and seek treatment for mental illness, more children will likely receive behavioral health assessments to identify mental illness. For children enrolled in CDHPs and HDHPs, it may be more difficult to engage in continuity of care and/or comply with treatment given the high costs of behavioral health visits. By design, these types of health plans have the potential to increase disparities in access to care and perhaps reduce adherence to mental health treatment among children. As CDHPs and HDHPs continue to grow, enrollees must be cognizant of the health insurance benefit design and the financial risks, including higher out-of-pocket costs for each plan type.

Our study shows a steady increase in mental health services use. This finding could be attributed to several factors, including but not limited to increased health insurance coverage or early screening and identification of childhood mental health, among others. Our findings shed light on the need for pediatric primary care providers to address both the physical and socioemotional health of children and adolescents.²⁴ The American Academy of Pediatrics Task Force on Mental Health has developed strategies for preparing primary care practices to improve the mental health of children and adolescents,²⁵ but challenges, such as the fidelity of evidence-based practice, effective prevention, and early intervention in the provision of mental health services for children, continue to exist.²⁶ As more children and adolescents seek

services to improve their emotional well-being, it is imperative to enhance pediatric primary care delivery systems and address the high costs associated with mental health for this population.

Lastly, as CDHPs and HDHPs proliferate among large employers, employees need to be cognizant of the high costs associated with these plans and the impact they may have on accessing services for chronic conditions, such as mental illness, that require several visits annually. Given the high distribution of mental illness among children, this study highlights the importance of prevention and treatment intervention for children at risk for and with mental illness. In the context of the ACA, public health policy makers and practitioners must prioritize the health and well-being of children to include more comprehensive prevention and treatment strategies in early childhood.

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ABBREVIATIONS

ACA: Patient Protection and Affordable Care Act
 ADHD: attention-deficit/hyperactivity disorder
 BHT: behavioral health therapy
 CCS: Clinical Classification Software
 CDHP: consumer-driven health plan
 HDHP: high-deductible health plan
 HMO: health maintenance organization
 MHPAEA: Mental Health Parity and Addiction Equity Act of 2008
 PPO: preferred provider organization

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