Parity and Out-of-Pocket Spending for Children With High Mental Health or Substance Abuse Expenditures

AUTHORS: Colleen L. Barry, PhD, MPP,^a Alynna T. Chien, MD, MS,^{b,c} Sharon-Lise T. Normand, PhD,^{d,e} Alisa B. Busch, MD, MS,^{d,f,g} Vanessa Azzone, PhD,^d Howard H. Goldman, MD, PhD,^h and Haiden A. Huskamp, PhD^d

^aDepartment of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland;

^bDivision of General Pediatrics, Children's Hospital Boston, Boston, Massachusetts; ^cDepartments of ^eGeneral Pediatrics, and ^dHealth Care Policy, Harvard Medical School, Boston, Massachusetts; ^eDepartment of Biostatistics, Harvard School of Public Health, Boston, Massachusetts; ^fMcLean Hospital, Belmont, Massachusetts; ^gHealth Services Research Division, Partners Psychiatry and Mental Health; and ^hDepartment of Psychiatry, University of Maryland, Baltimore, Maryland

KEY WORDS

mental health, substance use disorder, parity, insurance

ABBREVIATIONS

CSHCN—children with special health care needs

DD—difference-in-differences

FEHB—Federal Employees Health Benefits

ICD-9-CM—International Classification of Diseases, Ninth Revision, Clinical Modification

MHPAEA—Mental Health Parity and Addiction Equity Act

MH/SUD—mental health and substance use disorder

NQTL—nonquantitative treatment limitation

OON—out-of-network

OOP—out-of-pocket

Dr Barry conceptualized and designed the study, drafted the initial article, and approved the final article as submitted; Drs Chien, Normand, Busch, Azzone, and Goldman made substantial contributions to study conception, design and interpretation, revised the article critically for important intellectual content, and approved the final article as submitted; and Dr Huskamp made substantial contributions to study conception, design and interpretation, obtained study data, revised the article critically for important intellectual content, and approved the final article as submitted.

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abstract

OBJECTIVE: The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act required health plans to provide mental health and substance use disorder (MH/SUD) benefits on par with medical benefits beginning in 2010. Previous research found that parity significantly lowered average out-of-pocket (OOP) spending on MH/SUD treatment of children. No evidence is available on how parity affects OOP spending by families of children with the highest MH/SUD treatment expenditures.

METHODS: We used a difference-in-differences study design to examine whether parity reduced families' (1) share of total MH/SUD treatment expenditures paid OOP or (2) average OOP spending among children whose total MH/SUD expenditures met or exceeded the 90th percentile. By using claims data, we compared changes 2 years before (1999–2000) and 2 years after (2001–2002) the Federal Employees Health Benefits Program implemented parity to a contemporaneous group of health plans that did not implement parity over the same 4-year period. We examined those enrolled in the Federal Employees Health Benefits Program because their parity directive is similar to and served as a model for the new federal parity law.

RESULTS: Parity led to statistically significant annual declines in the share of total MH/SUD treatment expenditures paid OOP (–5%, 95% confidence interval: –6% to –4%) and average OOP spending on MH/SUD treatment (–\$178, 95% confidence interval: –257 to –97).

CONCLUSIONS: This study provides the first empirical evidence that parity reduces the share and level of OOP spending by families of children with the highest MH/SUD treatment expenditures; however, these spending reductions were smaller than anticipated and unlikely to meaningfully improve families' financial protection. *Pediatrics* 2013;131:e903–e911

There is substantial interest in alleviating the economic impact of mental illness on families.¹ Mental health and substance use disorders (MH/SUDs) causing significant functional impairment affect an estimated 11% of the pediatric population.² MH/SUD problems are the number 1 cause of pediatric hospital admissions among those 10 to 14 years of age, and psychiatric admission rates have nearly doubled among children and adolescents over the past decade.³ Research suggests that out-of-pocket (OOP) spending associated with caring for children with MH/SUDs is high, even relative to children with other special health care needs.^{4,5} One study found, for example, that 43% of parents of children with special health care needs (CSHCN) that involved an MH/SUD condition reported OOP spending exceeding \$1000 annually, compared with only 22% of parents of CSHCN that involved only a medical condition.⁴ Parents of CSHCN involving an MH/SUD condition were also more likely to report reduced labor market participation and a greater time burden associated with providing and arranging for child care in comparison with other parents of special-needs children.^{4,5}

Historically, high OOP spending for a child's MH/SUD treatment has been due in part to benefit limits imposed by health plans. When families accessed MH/SUD services for their children, they were required to pay higher co-insurance amounts (ie, copays) for MH/SUD services than for non-MH/SUD medical services. Families faced greater caps on the number of outpatient visits or inpatient days covered annually for MH/SUD treatment compared with non-MH/SUD medical services.^{6,7}

The intent of the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA) implemented by Congress in 2010 was to

improve insurance coverage for MH/SUD by requiring that insurance benefits be equivalent to those offered for general medical services (eg, if a health plan paid 85% of the cost for an outpatient medical care visit, then the plan would be required to cover the same share of an outpatient MH/SUD visit). A primary goal of parity advocates was to lower the amount spent OOP, especially for those with the most disabling conditions and highest treatment expenses.

Previous research found that, although parity did not affect average total MH/SUD expenditures, it significantly lowered OOP spending on average for both children⁸ and adults.^{9–11} These average reductions in OOP spending attributable to parity were relatively small in magnitude, however.^{8,9} It is unknown how parity affects those at the high end of the spending distribution who may have been disproportionately affected by MH/SUD benefit limits before parity. A primary aim of parity is to protect individuals with severe mental illnesses against the catastrophic costs of seeking treatment, and, in doing so, increase efficiency and fairness in the insurance market. According to this logic, we would expect more substantial financial protection owing to parity among children with the highest treatment costs.

The aim of this study was to examine whether parity reduced families' (1) share of total MH/SUD treatment expenditures paid OOP or (2) average OOP spending on MH/SUD treatment among children whose total MH/SUD treatment expenditures were at or above the 90th percentile. Because the MHPAEA was implemented nationwide, there is no obvious national comparison group of privately insured children who did not experience parity to allow for a rigorous evaluation of the law's effects. Rather, we examined the effects of parity on OOP spending by families of

children with high MH/SUD treatment expenditures in the Federal Employees Health Benefits (FEHB) Program because it allows us to directly compare enrollees in a health plan that implemented parity with those in plans that did not. The FEHB Program, covering ~8.5 million enrollees, is the largest private health insurer in the United States. In 2001, under a presidential directive, all FEHB Program plans were required to begin offering comprehensive parity for in-network MH/SUD benefits. The FEHB Program parity directive is similar but not identical to the MHPAEA. Understanding the effects of parity in the FEHB Program on the OOP spending for children with the highest MH/SUD treatment expenditures can provide important insights on the possible effects of the newly implemented federal parity law.

METHODS

Data

We used 4 years of claims data (1999–2002) from 1 large national health plan in the FEHB Program covering 714 449 enrollees and from comparison group health plans in the Truven MarketScan database covering 1 192 769 enrollees. We examined the 2 years preceding (1999 and 2000) and the 2 years after (2001 and 2002) parity implementation in the FEHB Program. Enrollees aged 21 or younger were included in our study population. Because we restricted our study to children continuously covered over the 4-year study period, those older than 18 in our baseline year (1999) were excluded. Our primary study population was restricted to enrolled children with total MH/SUD expenditures at or above the 90th percentile of all children using MH/SUD treatment services within a calendar year in the FEHB Program and in the MarketScan comparison group. To aid interpretation, we also created annual cohorts of children whose total MH/SUD expenditures were at or below

the 50th percentile of enrollees using MH/SUD services.

Identifying MH/SUD Services

MH/SUD service use included inpatient and outpatient services associated with specified MH/SUD diagnoses and procedure codes and psychotropic drugs.¹² MH/SUD diagnoses were defined as those with diagnostic codes 291, 292, 295 through 309 (except 305.1 and 305.8), and 311 through 314 in the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM). A child was considered an inpatient user of MH/SUD services if the last primary diagnosis and the majority of all primary diagnoses in the inpatient admission were MH/SUD diagnoses. A child was considered an outpatient user if any of the following was indicated: an MH/SUD primary diagnosis, a procedure specific to MH/SUD treatment, or a face-to-face encounter at a facility specializing in MH/SUD care. Examples of *Current Procedural Terminology* procedure codes specific to MH/SUD treatment include, for example, 90801 for a psychiatric interview examination, 90802 to 90815 for individual psychotherapy with or without evaluation and management, and 90865 for medication management. To identify use of psychotropic medications, we developed 2 lists: a restricted list of medications that are used only for MH/SUD and an expanded list of medications used for both MH/SUD and other conditions. Expenditures for any medications on the restricted list counted as spending on a child's MH/SUD care. If a child used any MH/SUD services or incurred any related expenditures during the year, then expenditures for medications on the expanded list counted as MH/SUD spending.

For descriptive purposes, we used diagnosis codes to group children into mutually exclusive hierarchical categories. Accurate psychiatric diagnosis

in the pediatric population can be challenging, particularly for younger children who may have a narrower repertoire of speech and behaviors from which to base a diagnosis. In our diagnostic hierarchy, we aimed to achieve distinctions between diagnostic categories that, on average, are expected to be more severe and/or chronic or complex compared with those that are not.^{13–15} Also, our goal was to apply a clinical rationale for categorizing individuals. For example, if a child had claims for oppositional defiant disorder and major depression, depression would be the diagnostic category in the descriptive table, because the oppositional behaviors may be related to the depression. Children were required to have the same ICD-9 code listed in the first diagnosis field on at least 2 claims on 2 different service dates during a calendar year or an MH/SUD hospitalization with that diagnosis as the reason for admission to be considered for a clinical condition. For those with >1 MH/SUD diagnosis, we applied the following hierarchy: schizophrenia (ICD-9 code: 295); bipolar disorder (ICD-9 codes: 296.0, 296.1, 296.4–296.8, 301.11, 301.13); depression or anxiety disorders (ICD-9 codes: 296.2, 296.3, 300.4, 301.12, 309.1, 311, 300.0, 300.2, 300.3, 309.81); attention-deficit/hyperactivity disorder (ICD-9 code: 314); conduct/oppositional defiant disorders (ICD-9 codes: 312, 313.81); a residual category of other mental disorders that includes autism-spectrum disorders (ICD-9 codes: 290–314, excluding any of the codes specified in the diagnostic algorithm); adjustment disorders (ICD-9 codes: 308, 309.0, 309.2, 309.3, 309.4, 309.82, 309.83, 309.89, 309.9); or SUD (ICD-9 codes: 291, 292, 303, 304, 305.0, 305.2–306.7, 305.9). For example, if a child met the criteria for schizophrenia, then he or she was considered to have schizophrenia in that claims year; or, a child having 2 claims with attention-deficit/hyperactivity disorder diagnoses

would be categorized as such only if she or he did not meet the algorithm criteria for schizophrenia, bipolar disorder, or depression or anxiety disorders. We categorized a child as not meeting diagnostic criteria if he or she had a single claim with an MH/SUD diagnosis, 1 or more relevant procedure or specialty MH/SUD provider codes with no diagnosis, or only psychotropic drug claims (ie, no other MH/SUD services) during the calendar year. Finally, we categorized individuals as having co-occurring SUD and mental illness when 1 or more SUD claims appeared in conjunction with any of the psychiatric diagnoses noted in a calendar year.

Measures

We examined the effect of parity on 2 OOP spending outcomes: (1) the share of total MH/SUD expenditures paid OOP and (2) average OOP spending on MH/SUD services among children with total MH/SUD expenditures at or above the 90th percentile in a calendar year in the FEHB plan and comparison group plans before and after implementation of parity in the FEHB Program. We also examined the effect of parity on average total spending on MH/SUD among children in the top expenditure decile. We controlled for a child's gender, age (ie, 0–3, 4–7, 8–11, 12–15, and 16–21), and region (Northeast, West, South, and Midwest).

Data Analysis

We calculated summaries (means and SDs) of the demographic and diagnostic characteristics of children with MH/SUD spending at or above the 90th percentile of all children with any MH/SUD service use in each calendar year. For comparison, we calculated similar summaries of children with MH/SUD spending at or below the 50th percentile of those with MH/SUD service use in each calendar year.

We estimated the effect of parity on OOP spending outcomes in the 90th percentile group by using a difference-in-differences (DD) approach. The DD estimate is the average annual difference before and after the implementation of parity in OOP outcomes in the comparison plans subtracted from the average annual difference before and after implementation of parity in the FEHB plan. Negative values indicate reduced spending for children in the FEHB plan relative to the comparison group plans. This analytic strategy allows us to account for any secular trend in outcomes, with any remaining significant differences attributable to parity. Because we use annual cohorts of children in the top decile of total spending for our DD models, a child may be included in 1 or more years depending on whether he or she hit the top decile in each year. (Given the relatively small number of enrollees in the top decile and the volatility of year-to-year MH/SUD spending among children, it was not feasible to restrict models to children hitting the top decile in all study years.)

Two separate models were estimated corresponding to our 2 OOP spending outcomes. To put the effect of parity on OOP spending in context, we used DD estimation to calculate the effect of parity on total MH/SUD spending among this group of children. To estimate the relationship between parity and share of total spending paid OOP, we modeled the log-odds of each share by using a generalized linear quasi-likelihood model assuming an identify link and normal distribution for the variance term. An unstructured covariance matrix to account for correlation among repeated annual observations for children appearing in >1 annual cohort was assumed. In contrast, to estimate the association of parity and average OOP and total spending, we used a generalized linear quasi-likelihood

model with a log link and γ distribution for the variance term. This model makes no distributional assumptions about the distribution of spending and directly models the logarithm of average spending without transforming the data. Models were estimated by using the Proc Genmod function in the SAS software system (SAS Institute, Inc, Cary, NC).

We used bootstrapping techniques to construct 95% confidence intervals for the DD estimates by obtaining the mean predicted outcomes produced by the models.¹⁶ Specifically, we sampled children with replacement, estimated the models described previously, and obtained the mean predicted OOP spending outcomes (on original share scale or on original dollar scale) for FEHB Program children and MarketScan children in the preparity period and postparity period. For each child, we then computed the DD by subtracting the postparity-preparity difference for the MarketScan children from the postparity-preparity difference from the FEHB children. We repeated this step 2000 times (sampling children with replacement, estimating models, obtaining predication, and calculating the DD). This process yielded 2000 estimated DDs, and we identified the 2.5th and 97.5th percentile of the estimated DDs

to construct a 95% confidence interval. This study was approved by the Harvard Institutional Review Board (M16475-102; September 5, 2008).

RESULTS

As expected, MH/SUD benefits were significantly altered from 2000 to 2001, consistent with the requirements of parity (Table 1). Table 1 also confirms that comparison group plans did not have parity-level benefits in the preparity period, and that benefit levels in these plans did not shift during the course of the study period.

Table 2 reports descriptive information on children enrolled in the national FEHB Program plan with MH/SUD spending at the 90th percentile or above, and with MH/SUD spending at the 50th percentile or below in each year of the study period (1999–2002). This descriptive information illustrates high spending levels and a high diagnostic severity within the 90th percentile group. In the baseline year (1999), average total MH/SUD expenditures were \$5530, and average OOP spending was \$1423. This group of children had high levels of psychoses, depression, anxiety, and other MH/SUD diagnoses, and 34% had an inpatient MH/SUD hospitalization in 1999. In contrast, in 1999, those in the 50th

TABLE 1 MH/SUD Benefit Design Characteristics of FEHB Program Plan and Comparison Group Plans Before (2000) and After (2001) Implementation of Parity

Benefit Design	National FEHB Program Plan		National Comparison Group ^a Plans	
	2000 ^b	2001	2000	2001
Annual inpatient day limit	45	No limit	50	50
Annual outpatient visit limit	20	No limit	30	30
Inpatient cost-sharing	30%	0	Low ^c	Low ^c
Outpatient cost-sharing	30%	\$15	Low ^d	Low ^d

^a National comparison group plans include 15 health plans from the MarketScan database. For this reason, we represent annual inpatient and outpatient cost-sharing levels as a range of values and a weighted average value.

^b Because plan benefits in 2000 were nearly identical to those in 1999, we show only the 2000 benefit levels before parity implementation. Likewise, because plan benefits in 2001 were nearly identical to those in 2002, we show only the 2001 benefit levels after parity implementation.

^c The proportion of inpatient cost-sharing across comparison group plans ranged from 0% to 20%, with a weighted average of 5%. We consider this amount to be a low level of inpatient cost sharing.

^d The proportion of the cost shared by the outpatient ranged from 0% to 50%, with a weighted average of 15%. We consider this amount to be a low level of outpatient cost sharing.

TABLE 2 Descriptive Characteristics of Children Enrolled in the National FEHB Program Plan and the National Comparison Plans With Total MH/SUD Expenditures at the 90th or Above and the 50th or Below Percentiles, 1999–2002

	Children Enrolled in the National FEHB Program Plan With MH/SUD Spending $\geq$ 90th Percentile				Children Enrolled in National Comparison Group Plans With MH/SUD Spending $\geq$ 90th Percentile			
	1999 (N = 943)	2000 (N = 1198)	2001 (N = 1198)	2002 (N = 1091)	1999 (N = 1198)	2000 (N = 1300)	2001 (N = 1405)	2002 (N = 1529)
Female gender, %	44.1	46.3	44.9	47.5	43.7	44.9	44.9	46.4
Age, y; %								
0–3	1.2	0.7	0.4	0.2	0.5	0.5	0.2	0.2
4–7	5.9	5.5	4.3	3.8	6.3	4.4	4.1	3.7
8–11	14.3	12.9	12.1	10.5	18.4	16.4	13.2	13.3
12–15	44.8	38.5	34.4	30.6	43.1	39.1	33.2	27.7
16–21	33.8	42.3	48.8	54.9	31.8	39.7	49.3	55.1
MH/SUD diagnoses, % ^a								
Schizophrenia or other psychoses	12.2	13.3	17.1	22.2	10.1	13.9	13.1	15.7
Bipolar disorder	1.7	3.0	3.6	4.0	1.5	2.3	2.0	2.0
Depression or anxiety disorder	51.6	49.8	45.5	40.4	48.4	48.0	49.6	49.2
Attention-deficit/hyperactivity disorder	11.7	11.3	12.7	9.4	13.8	12.4	11.8	11.1
Conduct/oppositional defiant disorder	4.2	3.0	2.9	2.4	4.3	2.7	2.6	2.4
Other mental health disorder	3.6	4.1	3.3	3.7	4.3	4.5	3.8	4.9
Adjustment disorder	4.1	5.3	3.1	2.9	8.3	6.5	8.3	5.7
SUD	3.2	3.1	4.0	5.0	1.7	2.2	2.5	1.8
Did not meet study diagnostic criteria ^b	7.7	7.1	7.8	10	7.6	7.5	6.3	7.2
Comorbid MH/SUD diagnoses, % ^c	7.0	10.0	11.9	10.8	5.8	7.9	8.4	7.9
Treatment received, %								
Any MH/SUD inpatient use	33.8	37.8	38.4	38.3	21.1	20.3	21.6	22.6
Any MH/SUD outpatient use	96.4	94.3	94.4	93.5	97.1	96.5	97.7	97.4
Any psychotropic drug use	62.6	65.5	74.5	77.8	81.8	85.0	86.5	88.8
MH/SUD treatment spending								
Average total spending, \$	5530	5286	5484	5983	5293	5480	6299	6803
Average OOP spending, \$	1423	1287	1224	1306	465	485	526	598
OOP as a share of total spending, %	34	31	27	27	11	11	11	11
	Children Enrolled in the National FEHB Program Plan With MH/SUD Spending $\leq$ 50th Percentile				Children Enrolled in National Comparison Group Plans With MH/SUD Spending $\leq$ 50th Percentile			
	1999 (N = 4444)	2000 (N = 3851)	2001 (N = 5041)	2002 (N = 5211)	1999 (N = 5613)	2000 (N = 6070)	2001 (N = 6581)	2002 (N = 7185)
Female gender, %	42.0	45.4	47.3	49.5	39.1	42.1	45.2	47.0
Age, y; %								
0–3	3.4	2.9	1.5	0.8	5.6	3.1	1.5	0.7
4–7	10.6	8.4	7.3	6.7	12.5	10.6	9.2	7.6
8–11	24.0	21.0	17.2	15.0	26.7	23.3	20.0	16.0
12–15	35.6	31.4	29.5	25.5	32.3	31.8	28.2	25.7
16–21	26.4	36.2	44.6	52.0	22.9	31.0	41.1	50.2
MH/SUD diagnoses, % ^a								
Schizophrenia or other psychoses	0.1	0.1	0.3	0.5	0.1	0.1	0.3	0.3
Bipolar disorder	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depression or anxiety disorder	5.4	5.1	7.4	9.5	5.0	6.6	8.1	9.5
Attention-deficit/hyperactivity disorder	10.0	10.0	6.4	5.9	8.2	7.7	7.2	6.3
Conduct/oppositional defiant disorder	1.4	0.7	1.4	0.9	1.0	1.3	1.2	1.2
Other mental health disorder	1.0	1.1	1.0	0.8	0.8	0.8	1.1	1.2
Adjustment disorder	4.1	1.9	6.2	6.4	6.5	7.9	8.7	8.2
SUD	0.7	0.4	0.8	1.0	0.4	0.7	1.0	1.1
Did not meet study diagnostic criteria ^b	77.3	80.7	76.5	75	78	74.9	72.4	72.2
Comorbid MH/SUD diagnoses, % ^c	2.6	2.6	2.9	3.7	2.3	2.4	3.3	3.7
Treatment received, %								
Any MH/SUD inpatient use	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 2 Continued

	Children Enrolled in the National FEHB Program Plan With MH/SUD Spending $\geq$ 90th Percentile				Children Enrolled in National Comparison Group Plans With MH/SUD Spending $\geq$ 90th Percentile			
	1999 (N = 943)	2000 (N = 1198)	2001 (N = 1198)	2002 (N = 1091)	1999 (N = 1198)	2000 (N = 1300)	2001 (N = 1405)	2002 (N = 1529)
Any MH/SUD outpatient use	75.1	67.8	70.7	68.9	60.3	60.9	59.9	58.5
Any psychotropic drug use	41.7	53.3	46.1	49.0	61.8	62.1	62.9	65.1
MH/SUD treatment spending								
Average total spending, \$	120	114	133	142	160	174	203	224
Average OOP spending, \$	68	69	97	103	36	40	46	48
OOP as a share of total spending, %	40	38	26	24	21	21	22	21

^a We used diagnosis codes to group children into mutually exclusive hierarchical categories. Children needed to have the same ICD-9 code listed in the first diagnosis field on at least 2 claims on 2 different service dates during a calendar year or an MH/SUD hospitalization with that diagnosis being the reason for admission to be considered for a clinical condition. The diagnostic hierarchy was as follows: schizophrenia, bipolar disorder, depression or anxiety disorders, attention-deficit/hyperactivity disorder, conduct/oppositional defiant disorders, a residual category of other mental health disorders excluding adjustment disorders, or SUDs.

^b We categorized a child as not meeting diagnostic criteria if he or she had a single claim with an MH/SUD diagnosis, ≥ 1 relevant procedure or specialty MH/SUD provider codes with no diagnosis, or only psychotropic drug claims (ie, no other MH/SUD services) during the calendar year.

^c We categorized individuals as having co-occurring SUD and mental illness when ≥ 1 SUD claims appeared in conjunction with any of the psychiatric diagnoses noted in a calendar year.

percentile or below group had substantially lower total and OOP MH/SUD spending (\$120 and \$68, respectively) and a much less severe diagnostic profile. Table 2 also indicates that, as expected, the share of spending paid OOP among FEHB Program plan enrollees drops in both the 90th percentile and the 50th percentile groups from pre-parity to postparity.

Table 2 provides comparable information for children enrolled in national comparison group plans with spending at the 90th percentile and above and the 50th percentile and below. The relative magnitude of the differences across high and low spenders in the comparison plans are similar to the patterns observed in the FEHB Program plan. Two important differences between comparison group enrollees and FEHB Program enrollees are worth noting. First, although total MH/SUD spending levels are similar to the FEHB Program enrollees, comparison plan enrollees paid a lower share of this spending OOP. Second, in contrast with FEHB Program enrollees, comparison group enrollees did not experience any drop in OOP MH/SUD spending as a share of total MH/SUD spending over the study period. For both FEHB Program children and comparison group children, we observed

relatively large shifts in and out of the high-spender category occurring from year to year, suggesting that the population of high-spending children is not stable. For example, among children enrolled in the FEHB Program with spending at the 90th percentile or above in 1999, only 35% fell into this high-spender category in 2000 and only 17% were high spenders in 2002 (results not shown).

Table 3 summarizes the results from DD models estimating the effects of

parity on the share of total MH/SUD spending paid OOP and average OOP MH/SUD spending, respectively. We found that parity was associated with a statistically significant 5 percentage-point decrease in the share of total MH/SUD spending paid OOP attributable to parity within this group of high-spending children. There was also a reduction of \$178 in average annual OOP MH/SUD spending in this group.

TABLE 3 Adjusted Changes in Annual OOP Spending After Parity Among High MH/SUD Treatment Expenditure Children Enrolled in the FEHB Program, 1999–2002¹

	Annual Share of Total MH/SUD Expenditures Paid OOP per User, %		FEHB Program Plan (After Parity – Before Parity) – Comparison Plans (After Parity – Before Parity) ^a , % (95% CI)
	Before Parity	After Parity	
National FEHB Program plan	29	24	–5 (–6 to –4)*
National comparison plans	9	8	
	Annual Average OOP MH/SUD Spending per User, \$		FEHB Program Plan (After Parity – Before Parity) – Comparison Plans (After Parity – Before Parity) ^a , \$ (95% CI)
	Before Parity	After Parity	
National FEHB Program plan	1375	1269	–178 (–257 to –97)*
National comparison plans	461	533	

Models adjusted for gender, age, and region. We define high-spending children as those with total MH/SUD treatment expenditures in the 90th percentile or above within a calendar year. These estimates have not been adjusted for inflation. CI, confidence interval.

^a DD estimation used to account for secular trends.

* $P \leq .05$.

To put this reduction in OOP spending in context, Table 4 reports results from a DD model estimating the effect of parity on average annual total MH/SUD spending in these children. Adjusted results indicate that average annual total MH/SUD spending among both FEHB Program and comparison group children increases before and after parity; however, the comparison group annual average increase after parity was substantially larger (\$1115) than the FEHB Program increase (\$137). As a result, the DD model indicates a statistically significant decline of \$978 in total MH/SUD spending attributable to parity in this group.

DISCUSSION

This study is the first to examine how parity affects children with high MH/SUD expenditures. We examined the effects of the parity directive implemented in the FEHB Program, a precursor to the new federal parity law, and found that this policy conferred statistically significant but small reductions in the OOP spending for children with high MH/SUD treatment expenditures. Among children with total MH/SUD spending at the 90th percentile or above, parity reduced the share of MH/SUD spending paid OOP annually by 5 percentage points and lowered annual OOP MH/SUD spending by \$178 (after adjusting for inflation, \$258 in 2011 dollars). Average annual OOP MH/SUD spending among these high-spending

FEHB Program children exceeded \$1300 in 2002. One goal of parity is to protect against the risk of large financial losses. Spending reductions detected fell short of the level needed to confer meaningful improvements in financial protection for families grappling with how to pay for a seriously ill child's treatment. An increase in financial protection of this magnitude translates into a relatively small change in most families' financial well-being and would not meaningfully affect available resources to pay for other health care services that may be needed within this group of more seriously ill children. In fact, OOP spending reductions among children in the top MH/SUD spending decile were similar in magnitude to the reductions in OOP spending found in a previous study examining the effects of parity on all FEHB children using services (−\$62 to −\$200),⁹ a group that includes children with much less serious conditions. These findings suggest that OOP spending reductions for severely ill children after implementation of the MHPAEA (and more recent parity provisions included in the Affordable Care Act) might be smaller than anticipated.

In addition, parity led to a significant reduction in total MH/SUD spending among these more severely ill children relative to the comparison group. This finding is suggestive of a strong managed care response to parity such as a more stringent approach to previous authorization or utilization review or

more limits on provider networks. As the generosity of MH/SUD benefits expand, we would expect more service use and higher total spending, unless managed care was applied more stringently after parity as a countervailing force.

It is critical to note that the FEHB Program parity directive differs from the new MHPAEA in a number of important respects. First, the FEHB Program directive applied only to in-network benefits. In contrast, the MHPAEA law requires that out-of-network (OON) MH/SUD benefits be equal to OON medical care benefits. Second, the federal agency that administers the FEHB Program, the Office of Personnel Management, explicitly encouraged participating health plans to use managed care techniques to implement parity in a manner that would enable them to control costs.¹⁷ In contrast, the MHPAEA interim final regulations issued in February 2010 prohibit plans from using so-called nonquantitative treatment limitations (NQTs) for MH/SUD benefits unless these limits are comparable to those used for medical benefits.¹⁸ NQTs include medical management standards, prescription drug formulary design, standards for provider admission to participate in a network, and provider reimbursement. In direct contrast with the Office of Personnel Management's approach, the intent of the NQTL regulations is to explicitly prohibit health plans from managing MH/SUD benefits unless the management strategies used are analogous to those used on the medical side. Both this provision and OON provision of the MHPAEA create the potential for the federal law to produce larger effects on OOP spending than those resulting from the FEHB Program parity policy.

There are several important limitations to this study worth noting. First, as is the case with all quasi-experimental studies, there is the concern about equivalence of the comparison group. We

TABLE 4 Adjusted Changes in Annual Total Spending After Parity Among High MH/SUD Treatment Expenditure Children Enrolled in the FEHB Program, 1999–2002

	Annual Average Total MH/SUD Spending per User,\$			FEHB Program Plan (After – Before) – Comparison Plans (After – Before) ^a ; \$ (95% CI)
	Before Parity	After Parity	Difference (After – Before)	
National FEHB Program plan	5467	5604	137	−978 (−1536 to −459)*
National comparison plans	5252	6367	1115	

Models adjusted for gender, age, and region. We define high-spending children as those with total MH/SUD treatment expenditures in the 90th percentile or above within a calendar year. These estimates have not been adjusted for inflation. CI, confidence interval.

^a DD estimation used to account for secular trends.

* $P \leq .05$.

do find that although total MH/SUD expenditures at baseline in the treatment and comparison groups are almost identical, comparison group enrollees had lower OOP spending, which likely reflects the cost-sharing differences noted in Table 1. A critical assumption of the DD approach is that the underlying spending trends in the FEHP Program and comparison plans would have been similar in the absence of the parity policy. Unfortunately, we do not have sufficient pre-parity data to confirm long-term spending trends. Second, we included only enrollees who were continuously enrolled over the 4-year study period. Although this approach may limit the study's generalizability, inclusion of all children would risk confounding the effects of parity with those of changes in plan enrollment. Third, this study is also limited in its

focus on a single FEHB Program plan. Although this plan includes over 700 000 enrollees nationwide, it likely differs in certain respects (ie, benefit design features) from other FEHB Program plans and from health plans now covered under the MHPAEA. Fourth, there is the generic concern that claims data undercount service use and family financial burden if some MH/SUD treatment is completely paid for OOP (without using insurance). Finally, the FEHB Program parity directive was implemented in 2001, and the total spending and beneficiary cost-sharing levels reported in this study and the underlying patterns of MH/SUD treatment of children have changed in the intervening years; however, all available evidence suggests that the need for MH/SUD services continues to be unmet and rising.¹⁹

A key factor in the passage of the MHPAEA was the belief among policymakers, supported by rigorous academic research,^{20,21} that parity could improve fairness in insurance coverage without dramatically increasing health care expenditures. The federal parity law is rightly viewed as an antidiscrimination measure, and in that regard it achieved its objective. Other possible objectives might not be so clearly met. Although parity offered some protection against the often high costs of caring for a child with an MH/SUD, it did not lower OOP spending as much as expected.

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REFERENCES

1. Insel TR. Assessing the economic costs of serious mental illness. *Am J Psychiatry*. 2008;165(6):663–665
2. Shaffer D, Fisher P, Dulcan MK, et al. The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3): description, acceptability, prevalence rates, and performance in the MECA Study. Methods for the Epidemiology of Child and Adolescent Mental Disorders Study. *J Am Acad Child Adolesc Psychiatry*. 1996;35(7):865–877
3. Blader JC. Acute inpatient care for psychiatric disorders in the United States, 1996 through 2007. *Arch Gen Psychiatry*. 2011;68(12):1276–1283
4. Busch SH, Barry CL. Does private insurance adequately protect families of children with mental health disorders? *Pediatrics*. 2009;124(suppl 4):S399–S406
5. Busch SH, Barry CL. Mental health disorders in childhood: assessing the burden on families. *Health Aff (Millwood)*. 2007;26(4):1088–1095
6. Barry CL, Gabel JR, Frank RG, Hawkins S, Whitmore HH, Pickreign JD. Design of mental health benefits: still unequal after all these years. *Health Aff (Millwood)*. 2003;22(5):127–137
7. Gabel JR, Whitmore HH, Pickreign JD, Levit KR, Coffey RM, Vandivort-Warren R. Substance abuse benefits: still limited after all these years. *Health Aff (Millwood)*. 2007;26(4):w474–w482
8. Azrin ST, Huskamp HA, Azzone V, et al. Impact of full mental health and substance abuse parity for children in the Federal Employees Health Benefits Program. *Pediatrics*. 2007;119(2). Available at: www.pediatrics.org/content/119/2/e452
9. Goldman HH, Frank RG, Burnam MA, et al. Behavioral health insurance parity for federal employees. *N Engl J Med*. 2006;354(13):1378–1386
10. Azzone V, Frank RG, Normand SL, Burnam MA. Effect of insurance parity on substance abuse treatment. *Psychiatr Serv*. 2011;62(2):129–134
11. McConnell KJ, Gast SHN, Ridgely MS, et al. Behavioral health insurance parity: does Oregon's experience presage the national experience with the Mental Health Parity and Addiction Equity Act? *Am J Psychiatry*. 2012;169(1):31–38
12. US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Mental health and substance abuse (MH/SA) parity policy. Available at: <http://aspe.hhs.gov/daltcp/reports/parity.pdf>. Accessed January 11, 2013
13. Garland AF, Hough RL, McCabe KM, Yeh M, Wood PA, Aarons GA. Prevalence of psychiatric disorders in youths across five sectors of care. *J Am Acad Child Adolesc Psychiatry*. 2001;40(4):409–418
14. Briggs-Gowan MJ, Owens PL, Schwab-Stone ME, Leventhal JM, Leaf PJ, Horwitz SM. Persistence of psychiatric disorders in pediatric settings. *J Am Acad Child Adolesc Psychiatry*. 2003;42(11):1360–1369
15. Briggs-Gowan MJ, Horwitz SM, Schwab-Stone ME, Leventhal JM, Leaf PJ. Mental health in pediatric settings: distribution of disorders and factors related to service use. *J Am Acad Child Adolesc Psychiatry*. 2000;39(7):841–849
16. Efron B, Tibshirani R. *An Introduction to the Bootstrap*. Boca Raton, FL: CRC Press; 1998
17. U.S. Office of Personnel Management. *Call Letter for Contract Year 2001—Policy Guidance*. Published as FEHB Program Carrier Letter No. 2000-17. Washington, D.C.: U.S. Office of Personnel Management; 2000
18. Internal Revenue Service, Department of the Treasury; Employee Benefits Security Administration, Department of Labor; Centers for Medicare & Medicaid Services, Department of Health and Human

Services. Interim final rules under the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008. Interim final rules with request for comments. *Fed Regist*. 2010;75(21):5409–5451

19. Foy, JM; American Academy of Pediatrics Task Force on Mental Health. Enhancing pediatric mental health care: report from the American Academy of Pediatrics Task Force on Mental Health. Introduction. *Pediatrics*. 2010;125(suppl 3):S69–S74

20. Burnam MA, Escarce JJ. Equity in managed care for mental disorders. *Health Aff (Millwood)*. 1999;18(5):22–31

21. Barry CL, Frank RG, McGuire TG. The costs of mental health parity: still an impediment? *Health Aff (Millwood)*. 2006;25(3):623–634

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Address correspondence to Colleen L. Barry, PhD, MPP, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, 624 North Broadway, Hampton House 403, Baltimore, MD 21205. E-mail: cbarry@jhsph.edu

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