

# The Effects of Federal Parity on Substance Use Disorder Treatment

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**Background:** In 2008, the US Congress enacted the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA) requiring insurers to equalize private insurance coverage for mental health and substance use disorder services with coverage for general medical services.

**Objective:** To examine the effects of MHPAEA on substance use disorder treatment.

**Study Design:** We used a difference-in-differences design to compare changes in outcomes among plan enrollees in the years before and after implementation of federal parity (2009-2010) with changes in outcomes among a comparison group of enrollees previously covered by state substance use disorder parity laws.

**Methods:** Insurance claims data from Aetna Inc health plans in 10 states with state parity laws were used to compare outcomes for plan enrollees in fully insured and self-insured health plans (N = 298,339).

**Results:** In the first year of implementation, we found that federal parity did not lead to changes in the proportion of enrollees using substance use disorder treatment. We did find a modest increase in spending on substance use disorder treatment per enrollee (\$9.99, 95% confidence interval, 2.54-18.21), but no significant change in identification, treatment initiation, or treatment engagement.

**Conclusions:** Inclusion of substance use disorder services in the federal parity law did not result in substantial increases in health plan spending. It will be critical to study results for year 2 after regulations affecting the management of care (eg, utilization review, network access) take effect.

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In 2008, the US Congress enacted a landmark federal parity law, the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA), requiring health insurers to equalize private insurance coverage for mental health and substance use disorder (SUD) services with coverage for general medical services. Historically, health plans have imposed stringent limits on coverage for mental health and SUD services in the form of high cost sharing, annual inpatient day and outpatient visit limits, and lifetime dollar limits.<sup>1</sup> In 2006, prior to implementation of MHPAEA, the majority of workers in private industry faced limits on SUD coverage. For example, 74% of workers had either annual or lifetime limits on the number of hospital days and 71% of workers had either annual or lifetime limits on the number of office visits for SUD.<sup>2</sup> In contrast, almost all workers were offered unlimited hospital days and office visits for general medical services. In 2006, the median coinsurance level for SUD outpatient visits was 20% compared with 10% for outpatient medical services, and the median copayment for SUD outpatient visits was \$25 compared with \$17 for medical services.<sup>2</sup>

Although a majority of states had previously enacted laws requiring parity for coverage of mental health disorders, many fewer states included SUDs in the conditions covered under their parity laws.<sup>3</sup> MHPAEA took effect in 2010 and requires that when a private employer with 50 or more employees offers mental health and SUD coverage, all financial requirements (deductibles, copayments, coinsurance) and treatment limits (number of annual inpatient days and outpatient visits covered by insurance) for mental health and SUD must be equal to those for general medical services. The law also extends the Mental Health Parity Act of 1996, which prohibited the use of special annual and lifetime dollar limits for mental health benefits, to include SUD benefits. Health plans that provide out-of-network coverage for general medical services must also provide equal out-of-network coverage for mental health and SUD services.

To date, no published studies have examined the effects of MHPAEA. Most prior studies on the effects of state parity laws and of a comprehensive parity directive implemented in the Federal Employee Health Benefits Program focused on mental health and SUD treatment combined or on mental health treatment only. These studies consistently found that parity did not

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significantly increase use or spending,<sup>4-10</sup> except among low-income individuals,<sup>11</sup> and that parity did lead to small but significant declines in out-of-pocket spending.<sup>8-10</sup> Only 2 prior studies examined the effects of parity on SUD treatment alone. Azzone and colleagues<sup>12</sup> used health plan claims data to examine the effect of the Federal Employee Health Benefits Program parity policy on spending outcomes and performance measures based on Healthcare Effectiveness Data and Information Set (HEDIS); they found a significant decline in out-of-pocket SUD spending among treatment users and a small but significant increase in identification of SUD attributable to parity. A second study by Dave and Mukerjee<sup>13</sup> examined the effects of state parity laws, including those limited to mental health, on inpatient admissions for SUD treatment and found that parity increased treatment admissions as well as the likelihood that an admission was privately insured.

The expected effects of the MHPAEA are unclear. Because MHPAEA does not require that specific conditions be covered, health plans have some discretion in determining which conditions and services to cover under parity. Relatively low public support for SUD benefits<sup>14</sup> has led advocates to express concern that granting insurers discretion will lead to reduced coverage for SUD services. Conversely, SUD service users typically have higher spending compared with mental health service users. When limits are eliminated, a higher share of SUD patients are likely to be affected, which may lead to increases in spending.<sup>15</sup>

Using administrative claims data from Aetna, a large national health insurance company, we study how MHPAEA affected an array of SUD use and spending outcomes, including the proportion of enrollees using any SUD treatment, total annual spending on SUD treatment per enrollee and per user of SUD treatment, total per user out-of-pocket spending on SUD treatment, and proportion of total SUD spending paid out of pocket. We also examine the proportion of health plan enrollees meeting 3 HEDIS-based SUD performance measures—identification, treatment initiation, and treatment engagement—which were originally developed by the Washington Circle.<sup>16,17</sup> In this study, we examine the effects of the law in the first year it took effect: 2010.

## DATA AND METHODS

### Overview

We used a difference-in-differences study design to compare changes in outcomes among health plan enrollees 1 year

### Take-Away Points

Federal parity, as implemented in 2010, is unlikely to lead to large increases in total healthcare spending.

- In 1 national health plan, federal parity led to a small increase in spending on substance use disorder treatment per enrollee (\$9.99, 95% confidence interval, 2.54-18.21) in 2010, the first year after the policy took effect.
- This increase was not due to more individuals initiating treatment.
- Future work should consider the effects of the law in subsequent years after regulations affecting the management of care (eg, utilization review, network access) take effect.

before and 1 year after implementation of MHPAEA (2009-2010) with changes among a comparison group of enrollees covered by state SUD parity laws in place prior to MHPAEA (N = 298,339). Difference-in-differences estimation allows us to distinguish the effects of the federal parity law from other changes affecting medical care utilization. Because MHPAEA extends to enrollees in all privately insured firms with 50 or more employees in the United States, identifying a comparison group presents a challenge. In this study, health plan enrollees already subject to preexisting state SUD parity laws served as the comparison group. As of 2008, 10 states—Colorado, Connecticut, Kentucky, Maine, Maryland, Minnesota, New Hampshire, Oregon, Rhode Island, and Vermont—had passed parity laws that included SUD services. We therefore limited our study population to Aetna health plan enrollees in these 10 states. Under the Employee Retirement Income Security Act, enrollees in fully insured employer-sponsored health plans were subject to state parity laws, but enrollees in self-insured employer-sponsored health plans operating in these states were exempt from state parity laws. Thus, in these states only enrollees of self-insured plans were newly covered under federal parity. Prior work suggests effects of state parity laws were concentrated on individuals in fully insured plans, and these laws did not affect individuals in self-insured plans.<sup>11</sup> Self-insured plan enrollees in these 10 states who were subject to parity for the first time served as our treatment group, whereas fully insured plan enrollees who were already subject to SUD parity at the state level served as our comparison group.

### Data

We used de-identified Aetna administrative claims data to conduct this study. These data are from a single insurer, but include employees of many different firms with diverse benefit designs and clearly identifiable information on whether an enrollee is covered by a fully insured or self-insured plan. Importantly, Aetna does not carve out mental health or SUD benefits. We examined enrollee claims 1 year before (2009) and 1 year after (2010) MHPAEA implementation. We included individuals continuously enrolled in Aetna health

plans over the full 2-year study period to eliminate variation over time in the underlying population studied. All individuals aged 18 to 62 years in calendar year 2009 were included. We excluded older individuals, who are typically covered by Medicare. We also excluded 135 individuals who switched between fully insured and self-insured plans during the 2-year period. Because most of the state parity laws considered (as well as MHPAEA) do not apply to firms with fewer than 50 employees, individuals employed by these small firms were excluded. Analyses included 162,761 enrollees in self-insured plans and 135,578 enrollees in fully insured plans.

### Measures

Claims were identified as being SUD related if they met either of 2 criteria. First, we identified enrollees treated for SUD using the first 2 *International Classification of Diseases, 9th Revision, Clinical Modification* diagnostic codes on each inpatient and outpatient claim using codes for alcohol-or drug-induced mental disorders (291 and 292), alcohol or drug dependence (303 and 304), and nondependent abuse of drugs (excluding tobacco) (305.0 and 305.2-305.9). In addition, any services received in an SUD treatment facility or from a drug or alcohol counselor were considered SUD treatment. We used National Drug Codes to identify prescription medications used specifically to treat SUD (ie, acamprosate, buprenorphine, buprenorphine/naloxone, disulfiram, and naltrexone [oral and sustained release]). Because methadone cannot be prescribed by physicians for the treatment of opioid dependence, we did not include methadone in our analysis. Outcomes in a calendar year were (1) proportion of enrollees using any SUD treatment, (2) total spending on SUD treatment per enrollee, (3) total spending on SUD treatment per user, (4) out-of-pocket spending on SUD treatment per user, and (5) proportion of total SUD spending paid for out of pocket. To calculate an enrollee's annual total spending, we included all SUD-related inpatient, partial hospitalization, intensive outpatient, and outpatient services, and prescription medications to treat SUD. To calculate an enrollee's annual out-of-pocket spending, we included the deductible, copayment, and coinsurance for SUD services and prescription medications.

We examined 3 HEDIS-based SUD performance measures. We measured *identification* as the share of all health plan enrollees who had a new SUD claim within a calendar year. New treatment episodes were those with no SUD treatment during the prior 60 days. We measured *treatment initiation* as the share of enrollees with a new episode of SUD treatment who initiated treatment within 14 days of their initial diagnosis. Following HEDIS, all patients for whom identification of SUD occurred through a hospital admission

were considered to have initiated treatment, but inpatient detoxification services were not considered treatment initiation. We measured *treatment engagement* as the share of enrollees with a new episode of SUD treatment who received at least 2 SUD services within 30 days of their initial diagnosis. For the treatment engagement measure, multiple services could not occur on the same day. To ensure that we were identifying only new episodes, we did not consider episodes that began during the first 60 days of the calendar year. For both the initiation and engagement measures, we omitted episodes that did not allow for a 30-day follow-up (ie, those that occurred late in the year).

Our explanatory variables were indicators for whether an observation occurred after federal parity implementation (ie, in 2010) and whether the individual was enrolled in a plan newly subject to parity (ie, a self-insured firm). We also controlled for enrollee sex, age (ie, age 18-31, 32-46, 47-62 years in 2009), and state.

### Analytic Strategy

We estimated the effect of federal parity using a difference-in-differences model. For binary outcomes we used logistic regression. For spending outcomes we used a 2-part model to estimate the probability of any SUD use and then estimated spending conditional on any use using a generalized linear model with a log link and gamma distribution, as indicated by the results of a modified Park test.<sup>18</sup> To estimate the relationship between parity and share of total spending paid out of pocket, we estimated a fractional logit model, which was implemented as a generalized linear model with a logit link and binomial distribution.<sup>19</sup> To facilitate interpretation, we transformed relevant coefficients to the original scale of the outcome using the method of recycled predictions. We calculated confidence intervals using a nonparametric block bootstrap method that accounts for repeat observations for individuals.<sup>20</sup> This study was exempted from review by Yale University Institutional Review Board.

## RESULTS

We compared characteristics of the self-insured treatment group and fully insured comparison group enrollees in 2009 (Table 1). Self-insured enrollees were significantly more likely to be female and younger, although these differences are not large enough to be clinically meaningful. Although differences were small in absolute terms, self-insured enrollees were 57% more likely than fully insured enrollees to have an SUD diagnosis (1.1 % vs 0.7 %).

Table 2 reports difference-in-differences estimates for the probability of use of SUD treatment and total spending on

■ **Table 1.** Baseline Characteristics of Study Population, 2009<sup>a</sup>

Characteristics	No. (%)		P <sup>b</sup>
	Self-Insured (N = 162,761)	Fully Insured (N = 135,578)	
<b>Female</b>	84,530 (54.1)	71,755 (52.9)	<.001
<b>Age, y</b>			<.001
18-31	40,520 (24.9)	35,205 (26.0)	
32-46	63,903 (39.3)	50,870 (37.5)	
47-62	58,338 (35.8)	49,503 (36.5)	
<b>State</b>			<.001
Colorado	31,794 (19.5)	23,348 (17.2)	
Connecticut	40,195 (24.7)	22,370 (16.5)	
Kentucky	11,488 (7.1)	2764 (2.0)	
Maryland	35,618 (21.9)	56,933 (42.0)	
Maine	12,915 (7.9)	20,748 (15.3)	
Minnesota	9840 (6.0)	2782 (2.1)	
New Hampshire	4592 (2.8)	976 (0.7)	
Oregon	12,050 (7.4)	5164 (3.8)	
Rhode Island	2893 (1.8)	363 (0.3)	
Vermont	1376 (0.8)	130 (0.1)	
<b>Presence of selected diagnosis</b>			
Any substance use disorder treatment	1752 (1.1)	912 (0.7)	<.001
Any alcohol use disorder treatment	653 (0.4)	342 (0.3)	<.001
Any illicit drug use disorder treatment	1099 (0.7)	570 (0.4)	<.001
Any opioid use disorder treatment	323 (0.2)	166 (0.1)	<.001

<sup>a</sup>All enrollees were continuously enrolled for the 2-year study period (2009-2010).  
<sup>b</sup>P values indicate whether self-insured and fully insured enrollees had significantly different baseline characteristics in 2009.

SUD treatment per enrollee. After accounting for secular trends in the use of SUD treatment, we found no significant difference in the probability of using SUD treatment attributable to MHPAEA. We did find a significant increase of \$9.99 (95% confidence interval [CI], \$2.54-\$18.21) in total spending on SUD treatment per enrollee attributable to MHPAEA, compared with a base rate of \$36.51 in the self-insured group. We found no significant difference in total spending on SUD treatment per user, although the point estimate was relatively large (\$608). **Table 3** indicates that we detected no effect of MHPAEA on out-of-pocket spending on SUD treatment or proportion of spending paid out of pocket among users.

**Table 4** summarizes the effects of MHPAEA on the HEDIS-based identification, treatment initiation, and treatment engagement performance measures. We found no significant effect on identification of SUD, treatment initiation, or treatment engagement associated with implementation of MHPAEA.

## DISCUSSION

This study is the first to examine the effects of MHPAEA on SUD treatment use and spending. The new law led to a significant increase in SUD spending of \$9.99 per health plan enrollee. The average cost of an employer-sponsored individual health insurance policy in 2010 was \$5049,<sup>21</sup> suggesting this is a negligible increase. During the congressional debate over passage of MHPAEA, employers and health plans raised the concern that the law would greatly increase healthcare spending.<sup>22</sup> This study suggests that, at least related to SUD treatment, this concern was unfounded. Once a controversial and much debated issue, the inclusion of SUD services in parity appears unlikely to affect either health plan profitability or overall rates of insurance coverage.

That we found no change in out-of-pocket SUD spending suggests federal parity did not lead to increases in financial protection for SUD treatments. This result is surprising given

■ **Table 2.** Probability of Use of SUD Treatment, Total Spending by Enrollee, and Total Spending by SUD Treatment User Before and After Implementation of MHPAEA<sup>a</sup>

Type of Enrollee or User	Probability of Use of SUD Treatment, %		Change in Value Before and After MHPAEA, % <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured enrollees (N = 162,761)	1.04	1.18	0.05	-0.03 to 0.12
Fully insured enrollees (N = 135,578)	0.70	0.79		
Type of Enrollee or User	Total Spending on SUD Treatment per Enrollee, \$		Change in Value Before and After MHPAEA, \$ <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured enrollees (N = 162,761)	36.51	52.62	9.99	2.54-18.21
Fully insured enrollees (N = 135,578)	26.58	32.70		
Type of Enrollee or User	Total Spending on SUD Treatment per User, \$		Change in Value Before and After MHPAEA, \$ <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured users (N = 3738)	3502.41	4453.12	607.68	-185.71 to 1423.13
Fully insured users (N = 1941)	3795.87	4138.90		

CI indicates confidence interval; MHPAEA, Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act; SUD, substance use disorder.  
<sup>a</sup>Models adjusted for sex, age category, and state of residence.  
<sup>b</sup>A difference-in-differences analysis was used to account for secular trends.

■ **Table 3.** Out-of-Pocket Spending on SUD Treatment per User Before and After Implementation of MHPAEA<sup>a</sup>

Type of Enrollee or User	OOP Spending on SUD Treatment per User, \$		Change in Value Before and After MHPAEA, \$ <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured users (N = 3738)	449.48	538.70	39.00	-71.05 to 145.13
Fully insured users (N = 1941)	572.23	622.45		
Type of Enrollee or User	Total User Spending Paid OOP, %		Change in Value Before and After MHPAEA, % <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured users (N = 3738)	25.7	26.9	1.8	-1.3 to 4.8
Fully insured users (N = 1941)	27.7	27.2		

CI indicates confidence interval; OOP, out-of-pocket; SUD, substance use disorder.  
<sup>a</sup>Models adjusted for sex, age, and state.  
<sup>b</sup>A difference-in-differences analysis was used to account for secular trends.

data indicating that higher cost sharing for SUD services was common prior to MHPAEA.<sup>2</sup> Under parity, 2 potentially offsetting changes to out-of-pocket spending might be expected. First, equalization of cost sharing between general and medical care services might lead to lower cost sharing for SUD services and thus reduce out-of-pocket spending. Second, increases in the number or intensity of services due to reduced out-of-pocket price or elimination of treatment limits might lead to increases in total costs and total out-of-pocket spending. To shed light on the relative importance of these competing effects, we examined the proportion of total costs paid out of pocket. If cost sharing were declining, we would expect the proportion of total costs paid out of pocket to decline as well. That we found no change in the proportion of total costs paid

out of pocket suggests that the elimination of treatment limits may be an important cause of increased spending. This would be the effect expected if increases in treatment expenditures result from the elimination of day or visit limits rather than reductions in cost sharing.

We also note that our data included claims for SUD treatments paid for by private insurance. If MHPAEA resulted in a switch from SUD services self-financed by families to services financed by insurance, out-of-pocket spending reported in claims might have increased, but actual out-of-pocket spending by SUD treatment users might have declined. We found no significant increase in SUD identification, treatment initiation, or treatment engagement after parity implementation. We note that these measures only captured whether individuals

**Table 4.** Identification, Treatment Initiation, and Treatment Engagement Using HEDIS-Based SUD Performance Measures Before and After Implementation of MHPAEA<sup>a</sup>

Type of Enrollee or User	Identification With a New SUD Diagnosis, %		Change in Value Before and After Parity, % <sup>b</sup>	95% CI (Percentile Bootstrap)
	2009	2010		
Self-insured enrollees (N = 162,761)	0.81	0.91	0.01	-0.074 to 0.094
Fully insured enrollees (N = 135,578)	0.53	0.62		
	Treatment Initiation, %		Change in Value Before and After Parity, % <sup>b</sup>	95 % CI (Percentile Bootstrap)
	2009	2010		
Self-insured enrollees <sup>c</sup>	34.71	33.33	0.44	-5.07 to 6.40
Fully insured enrollees <sup>d</sup>	32.63	30.81		
	Treatment Engagement %		Change in Value Before and After Parity, % <sup>b</sup>	95 % CI (Percentile Bootstrap)
	2009	2010		
Self-insured enrollees <sup>c</sup>	19.29	19.57	1.84	-2.79 to 6.65
Fully insured enrollees <sup>d</sup>	19.40	17.84		

CI indicates confidence interval; HEDIS, Healthcare Effectiveness Data and Information Set; MHPAEA, Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act; SUD, substance use disorder.

<sup>a</sup>Models adjusted for sex, age, and state.

<sup>b</sup>A difference-in-differences analysis was used to account for secular trends.

<sup>c</sup>The number of self-insured enrollees included in treatment initiation and treatment engagement analysis in 2009 and 2010 was 1359 and 1532, respectively.

<sup>d</sup>The number of fully insured enrollees included in treatment initiation and treatment engagement analysis in 2009 and 2010 was 691 and 812, respectively.

were more likely to begin treatment and did not measure the duration or the intensity of treatment. Although not definitive, that we found increases in SUD total expenditures of 27% (an increase of \$10 with an initial expenditure of \$37 per enrollee for the self-insured group, as indicated in Table 2) without similar increases in identification suggests there were increases in treatment duration or treatment intensity after MHPAEA implementation. The point estimate of total spending per SUD treatment user suggests an increase in yearly total spending of approximately \$600 per year, although this finding is not statistically significantly different from zero due to imprecision in the estimate caused by the relatively small number of SUD treatment users in our sample. In these data the payment for a physician visit for SUD treatment of low to moderate intensity was approximately \$70, suggesting this increased spending may yield 8 additional visits for SUD treatment. Treatment increases may be an important benefit of parity given the level of unmet need associated with SUD and evidence that treatment provides important benefits and reduces social costs.<sup>23</sup>

Understanding the effects of MHPAEA on SUD treatment is critical because provisions of the Patient Protection and Affordable Care Act will extend the law to the individual and small group insurance markets under state and federal health insurance exchanges beginning in 2014. Substance use disorder services are required as part of the essential health benefit under the Affordable Care Act, although states may differ on the scope of SUD benefits covered.

Strengths of this study include the use of a comparison group to control for secular trends in SUD treatment use, geographic heterogeneity in the study population, and detailed SUD treatment use and spending data. Like all studies, our research is limited by the type of data considered. These data did not include patient interviews or medical chart reviews to confirm information regarding diagnosis or services received, or information on treatments not financed by insurance. There is little reason to expect that these data limitations differentially affected the intervention and comparison groups, suggesting our estimates of changes in use and spending were unbiased. Yet if providers systematically changed recorded diagnoses in response to parity (due to increased coverage for SUD treatments), our results would be biased. In addition, we found little difference in reimbursement levels between the self-insured and fully insured groups.

Another limitation is that MHPAEA may lead to multiple insurance market changes, including declines in the out-of-pocket price of services, increases in supply-side constraints imposed by insurers (ie, prior authorization, referral restrictions), and reduced stigma associated with SUD treatment, which may all affect use and spending. Although our study design allowed us to determine the net effect of parity, we were not able to disentangle these competing mechanisms.

A third consideration is that preexisting state parity laws were not identical to MHPAEA; therefore, fully insured en-

rollees in our comparison group might have experienced some change in benefits as they moved from being subject to the less comprehensive state parity laws to the more comprehensive MHPAEA in 2010. A fourth limitation is that we did not consider changes in costs for treatment of substance abuse–related medical conditions (eg, alcoholic cirrhosis, hepatitis). A fifth limitation relates to the generalizability of our findings. We evaluated the effects of parity on individuals insured by a single health insurer in 10 states with preexisting state SUD parity laws. Thus our results may not be generalizable to other insurance or population contexts.

Finally, this study examined only the first year after MHPAEA took effect. The interim final regulations of MHPAEA, which were released in February 2010 and took effect for most plans in 2011, prohibited plans from using so-called nonquantitative treatment limits for mental health and SUD benefits unless these limits were comparable to those used for general medical services.<sup>24</sup> Nonquantitative treatment limits include medical management standards, prior authorization, utilization review, prescription drug formulary design, standards for provider admission to participate in a network, and provider reimbursement. It is possible that these regulations could lead to different effects of the law; therefore, it is critical for future research to examine use and spending in response to MHPAEA in subsequent years.

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