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Effect of Insurance Parity on Substance Abuse Treatment

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Abstract

OBJECTIVE—This study examined the impact of parity for substance abuse treatment on use, cost and quality of substance abuse treatment.

METHODS—The authors compared substance abuse spending and use from 1999 to 2002 for continuously enrolled beneficiaries covered by Federal Employee Health Benefit (FEHB) plans with similar outcomes from beneficiaries in a matched set of health plans without parity coverage. Logistic regression models of the probability of any substance abuse service use, and conditional on use, linear models of substance abuse total and out-of-pocket spending were estimated. Logistic regression models for three quality indicators for substance abuse treatment were also estimated: identification of adult enrollees with a new substance abuse diagnosis, treatment initiation, and treatment engagement. Difference-in-differences were computed as (post-parity - pre-parity) difference in outcomes in plans without parity subtracted from difference in FEHB plans.

RESULTS—There were no significant differences in rates of changes in average use of substance abuse services between FEHB and non-FEHB plans. Conditional on use, rate of substance abuse out-of-pocket spending declined significantly relative to non-FEHB plans (mean difference=−\$101.09, 95% CI=[−\$198.06, −\$4.12]), while changes in total spending did not differ. Under parity, more patients were identified with a new substance abuse diagnosis (.10%, [.02%, .19%]). No statistically significant differences were found for initiation and engagement in substance abuse treatment rates.

CONCLUSIONS—Findings suggest that for continuously enrolled populations, providing parity of substance abuse coverage improves insurance protection but has little impact on utilization, costs to plans, or quality of care.

Introduction

The Federal Mental Health Parity Act of 2008 requires employers providing insurance benefits for mental or substance use disorders to provide “parity” between those benefits and benefits for medical and/or surgical care. The law prohibits more restrictive financial requirements for mental or substance use disorder benefits (including any out-of-pocket expenses) and also prohibits more restrictive limits (including limits on number of visits, days of coverage, scope of coverage, and annual/lifetime dollars). Relative to the Federal

Mental Health Parity Act enacted in 1996, this act strengthens federal parity mandates in several important respects. The recent Act applies broadly to financial requirements and limits of health benefit design, while the 1996 Act applied only to annual/lifetime dollar limits. The recent Act extends to self-insured employers, who were excluded from the 1996 Act. And the 2008 Act includes requirements of parity for substance use disorder benefits, while the earlier Act extended only to benefits for mental disorders. As with the 1996 Act, small employers of 50 or fewer employees are exempt from the requirements of the 2008 Act. Moreover, plans demonstrating that compliance with the Act increases their claims by at least two percent in the first year (one percent in subsequent years) may request exemption from this Act.

Opposition to parity legislation has focused on fears of rising healthcare costs. Accumulating research examining the effects of parity legislation on utilization and costs of mental health care has generally shown that fears of rising costs are not supported (1–5). These results evaluating mental health parity mandates were initially surprising in light of evidence from the RAND Health Insurance Experiment, conducted in the 1970s, showing increases in mental health utilization when out-of-pocket costs to beneficiaries are reduced (6). Absence of rising costs under parity are most readily explained by the extensive use, in current employer-based health insurance, of managed care organizations that administer behavioral health benefits and contain costs by managing the delivery of care -- for example, through negotiated reduction in fees with a network of preferred providers, and review of appropriateness of services to eliminate unnecessary use. Managed care, however, also raises questions about whether these approaches to cost containment reduce access to or quality of care.

While research evaluating mental health parity mandates undoubtedly helped pave the way for passage of comprehensive federal parity legislation last year, little research has been conducted on the effects of parity mandates for substance use treatment benefits (7, 8). In 1999, under Presidential order, the Federal Employees Health Benefits (FEHB) Program, covering 8.5 million enrollees, offered comprehensive parity for both mental health and substance use disorders, beginning January 1, 2001. An evaluation of parity implementation in seven large FEHB health plans showed few effects on utilization of mental health and substance abuse services or on spending for these services, but reductions in beneficiary out-of-pocket spending were found in 5 of the 7 plans (9). Separate analyses of parity in the FEHB Program found modest improvements in quality of care for depression, but these results were consistent with secular changes, and likely independent of parity (10). Prior studies of parity implementation in the FEHB Program have not examined parity's impact on utilization, spending or quality of substance abuse services, independent of that for other mental disorders.

This article reports on further analyses evaluating the implementation of parity in the FEHB Program. These analyses examine the impact of parity on use and costs of substance abuse services, and on indicators of quality of care of substance abuse services, using claims data.

Methods

Study setting

In June 1999 when former president Clinton ordered the Office of Budget and Management to implement parity in the FEHB program, he also mandated an evaluation to guide federal policy. Our analysis utilized data from that evaluation to examine the impact of FEHB program parity on use of substance abuse services, total spending and individual health out-of-pocket and plan spending for those services. We also examined three indicators of quality

of care for substance abuse: identification of adults with a substance abuse diagnosis; initiation and engagement in substance abuse treatment.

In the initial evaluation, nine large FEHB plans were selected for study participation on the basis of location, type of plan (preferred provider organization/health maintenance organization), population size and interest in participation. We restricted our analysis to 6 preferred provider organization plans. The two health maintenance organization plans were excluded because they were close to parity before the order was implemented. Further, a preferred provider organization plan was excluded because analytic resources were not sufficient to accommodate differences in the structure of the claims data. For the 6 preferred provider organization FEHB plans, we estimated differences in substance abuse spending, use, and quality indicators two years before and two years after parity implementation (1999–2002). To control for secular trends, we conducted the same analysis using a matched set of health plans without parity coverage or changes in mental and substance abuse coverage from the MarketScan® database. These plans were operated by large, self-insured employers and were matched based on location to the pooled sample of FEHB plans. Enrollees between the ages of 18 and 64 years old were included in the study. We restricted the analysis to individuals continuously enrolled in a plan for all the four years of the study in order to control for population changes and selection effects, and to provide an estimate of the effect at the beneficiary level. The FEHB plans in total covered 364,816 beneficiaries (ranging from 21,374 to 107,875); all had the same benefit limits before parity (one substance abuse treatment 28-days maximum per lifetime and 25 outpatient visits per year, 40% inpatient cost sharing, \$25 co-payment for outpatient visits). Four of the FEHB plans carved out mental health and substance abuse benefits to managed behavioral healthcare organizations before implementation of parity, one implemented a carve-out arrangement concurrent with parity, and the remaining plan did not contract with a managed behavioral healthcare organization during the study period. The MarketScan® plans had in total 47,600 beneficiaries. They had limits on both inpatient and outpatient substance abuse services (30 days and 30 visits per year) and variable cost sharing for the patients (ranging from 0 to 20% for inpatient and 0 to 50% for outpatient services). Between one third to half of the MarketScan® plans carved out mental health and substance abuse services during the time period considered.

Data

For both the FEHB plans and the MarketScan® plans, we examined four years of data on the benefit design, enrollment and medical claims, for two years before and two years after the implementation of parity for the FEHB program. We matched the two populations based on the enrollee demographic location as categorized by census regions, demographic characteristics (age and gender), and relationship to the policy holder. We sampled 45,000 people from the FEHB plans and the same number from MarketScan®, in proportion to the total number of beneficiaries in each state (for the FEHB plans) and in each region (for the MarketScan® plans). The study received Institutional Review Board approval.

Identifying Substance Abuse Services

We identified inpatient and outpatient services associated with substance abuse services using diagnosis codes, procedure codes and provider type codes (a detailed description is available at www.aspe.hhs.gov). Substance abuse diagnoses were defined as claims having diagnosis codes 291, 292, 303, 304, and 305 in the International Classification of Diseases, 9th Revision, Clinical Modification. Inpatient substance abuse services were identified if the last primary diagnosis and the majority of all primary diagnoses associated with an inpatient episode were for substance abuse. Outpatient substance abuse services were identified if any of the following was indicated: a substance abuse primary diagnosis, a procedure specific to

substance abuse, or a face-to-face encounter with a provider or treatment at a facility that specialized in substance abuse care.

Statistical Analysis

We estimated the association of parity on substance abuse treatment using a difference-indifference approach. We calculated the average difference (before and after the implementation of FEHB) of the outcomes of interest in the comparison group subtracted from the average difference before and after the implementation of parity in the FEHB plans. With this approach we adjust for any secular trend in the outcomes that was not associated with the implementation of parity. We used a two part model to estimate spending associated with parity implementation. The first part used logistic regression to estimate the effect of parity on the probability that a person would use any substance abuse services. The unit of analysis was the person-year and we adjusted for the demographic characteristics of the person (age and gender), and the person's relationship with the policy holder (employee or dependent). The predictors of interest were an indicator of post (versus pre) parity period, an indicator for FEHB plan (versus comparison plan), and the interaction between the two indicators. Because we have 4 repeated measures per beneficiary, we used a generalized estimating equation approach to correct standard errors of regression coefficients for clustering. Moreover, because the logistic model is not linear, we calculated the average effect of parity on the probability of use using the predictions from 500 bootstrap samples, constructing 95% confidence intervals (11, 12), using SAS software package. Confidence intervals that exclude 0 indicate statistically significant results.

For the second part of the spending models, we assessed the effect of parity on both total substance abuse service spending and out-of-pocket spending among those who used any substance abuse services. Because out-of-pocket and plan spending are part of total spending, they are correlated with total spending. As in the substance abuse use model, we have repeated measures (up to 4 per beneficiary, as each year an individual could have positive or zero spending), and we have unbalanced data (if there was no use, the dollar amount is not defined). Hence, we used the Seemingly Unrelated Regression approach (using STATA package), clustering for beneficiary/year, and permitting two correlated outcomes per beneficiary (total spending with out-of-pocket). For the second part/conditional regressions, we considered the entire sample of users and the unit of observation is person-year. We used a normal model to characterize spending and the same predictor variables as in the first part, as well as indicator variables for the diagnosis for which the user received treatment. The coefficient of the interaction between the post-parity indicator and the FEHB plan indicator allowed us to estimate any change in substance abuse spending due to the parity policy, after accounting for the secular trend in such spending among users of substance abuse services.

To examine changes in quality of substance abuse services, we employed the Washington Circle performance measures, which have been adopted by the National Committee for Quality Assurance for its Health Plan Employer Data and Information Set that tracks indicators of quality of care in health plans (13, 14). These measures of performance in delivery of substance abuse services can be reported by health plans using claims or encounter data, and are intended to capture different stages of the continuum of care for substance abuse disorder. The three measures represent a floor of services that are necessary to provide sufficient treatment for enrollees with substance abuse problems and they address the entire process of care, rather than just one aspect of it.

The first measure, "identification" of substance abuse services, is the proportion of adult enrollees who, over the measurement year, receive any substance abuse services, defined as having at least one claim containing a diagnosis of substance abuse/dependence or a

substance abuse treatment service. Because substance abuse is typically not detected and diagnosed among those with active disorders, increased rates of identification represent improved quality of care. The second measure, “initiation” of treatment, is the proportion of adults with a new substance abuse/dependence diagnosis who, over the measurement year, either have an inpatient substance abuse treatment admission, or have an initial outpatient treatment service for substance abuse and any additional services within 14 days. A new diagnosis is defined as a diagnosis with no substance abuse related claim in the previous 60 days. The third measure, “engagement” in treatment, is the proportion of adults with a new substance abuse/dependence diagnosis who, over the measurement year, receive two additional substance abuse treatment services within 30 days after initiating treatment. This definition of engagement has been associated with improved substance abuse and criminal outcomes (15, 16).

To examine effects of parity on these performance measures, we use logistic regression models, predicting the probability of identification, initiation, and engagement, and using the same set of independent variables as employed in the first part of the spending models. As with prior models, we calculated the change in the quality measures attributable to parity as the average of 500 bootstrap samples, constructing 95% confidence intervals.

Results

Table 1 reports descriptive data on the samples. In both populations female beneficiaries account for about half of the sample, and spouses account for about one third. There are more dependents in the Marketscan® sample while the FEHB population is slightly older. Table 2 presents the actual probability of any use of substance abuse services and difference-in-difference estimates. Any substance abuse use increased over time for all plans, however, after accounting for secular trends, we found no statistically significant difference in the rates of increase between FEHB and non-FEHB plans at the $p=.05$ level. Table 3 presents the actual total and out-of-pocket substance abuse spending, and the difference-in-difference estimates. Conditional on use, total substance abuse spending (as well as plan spending, data not shown) increased but this increase did not differ by parity. However, the parity policy was associated with a significant reduction ($p = .04$) in average out-of-pocket substance abuse spending compared to non-FEHB plans. The difference-in-difference estimate for the probability of identification is presented in Table 4 and indicates that with parity more beneficiaries were identified with a substance abuse diagnosis after accounting for secular trends ($p<.05$). No statistically significant differences were found for the probability of initiation and engagement in substance abuse treatment at the $p=.05$ level as both intervals included 0 (Table 5).

Conclusions

Implementation of parity in these large FEHB plans was not associated with significant increases in the probability of using substance abuse services, after accounting for secular trends. Even though increases in total and plan substance abuse spending were smaller in FEHB plans relative to non-FEHB plans, this finding was not statistically significant. However the rate of decrease in out-of-pocket spending was significantly larger for FEHB plans. While parity was associated with a higher probability of identifying adults with a substance abuse or dependence diagnosis, there were no measurable impacts on initiation nor engagement into substance abuse treatment among those identified with a disorder. These findings are generally consistent with other studies examining the effects of parity on mental health and substance abuse services use and spending when behavioral health benefits are administered by a managed care organization. FEHB rates of initiation and

engagement were much lower compared to the rates for commercial plans nationwide (in 2004, 45.9% and 15.5%, respectively) (17).

It is also notable that parity was associated with improved substance abuse identification rates, but did not improve substance abuse treatment initiation and engagement. Our results are consistent with the FEHB parity evaluation on the quality of major depression care (10). The results were not surprising given that quality improvement literature demonstrates that improvement typically involves concerted efforts and interventions that rely on multiple methods/efforts to effect practice change aimed at improving treatment quality (18); and the more complex the goals are for practice change the more effort is required in the part of the organization (19, 20). More generous benefits, however, may promote improved detection of substance abuse disorders.

The FEHB plans were encouraged to use managed care tools, and all of the plans, except one, that we studied had carved-out the management of their FEHB behavioral health benefits to a behavioral health managed care organization either before or concurrently with the implementation of parity. It is possible that managed behavioral healthcare contains the costs of substance abuse service use when out-of-pocket costs born by beneficiaries are lowered through parity mandates. It is also possible that an adult's decision to use substance abuse treatment services is not as sensitive to price as the decision to use mental health services. Costs associated with parity for the single plan that did not utilize a managed behavioral healthcare were not significantly different from those of the other plans we studied, and other research has suggested that substance abuse treatment is less price sensitive than mental health (21).

Our study has several limitations. Substance abuse diagnosis is surely underreported in claims data, resulting in an undercount of total substance abuse services. Despite the fact that we used substance abuse specific procedures and diagnosis and multiple methods for identifying the use of substance abuse services, we likely have not identified all enrollees with a substance abuse diagnosis. Additionally, we were focused on the beneficiary and so our analytical strategy aimed at obtaining effects to the individual beneficiary rather than the health plan; hence we limited our analysis to enrollees who were continuously enrolled before and after the parity implementation, and only 6 FEHB plans. Therefore, this analysis likely excludes those with the most severe disorders who might lose their job due to relapse, focusing on the average effect of parity, not on the parity effect for those who are sicker and high users of substance abuse services. However, the health plans included in the analysis varied in their managed care arrangements, and represented more than 3 million beneficiaries in the US and more than 300,000 continuously enrolled adults. While all of these plans were preferred provider organizations and the generalizability of these findings beyond preferred provider organization plans may be limited, the regions represented by the plans are large. Although we didn't have complete information on the level of benefit management, three of the FEHB plans, covering one third of the sample, carved out to the same managed behavioral organization.

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Table 1

Basic Descriptive Demographics (before the matching)

1999		
	FEHB	Marketscan®
Number of beneficiaries	364,816	47,600
Female	53.5%	49.2%
18–25	1.8%	5.1%
26–35	12.4%	10.9%
36–45	29.0%	29.3%
46–55	40.6%	36.3%
56–65	16.3%	18.4%
Employee	62.3%	57.7%
Spouse	36.7%	38.2%
Child/other dependent	1.0%	4.1%

Table 2

Observed and Adjusted Probability of Any Substance Abuse Treatment

	Preparity		95% CI	Postparity		95% CI	Difference-in-Difference Risk of any Substance Abuse use	
	1999	2000		2001	2002		Percent	95% CI
FEHB Observed percentage with any Substance Abuse use	.49	.52		.62	.69			
Marketscan® Observed percentage with any Substance Abuse use	.34	.35		.38	.39			
FEHB Observed percentage with any Substance Abuse use	.51			.66				
Marketscan® Observed percentage with any Substance Abuse use	.34			.38				
FEHB Expected Annual percentage with any Substance Abuse use (estimated from logistic model)	.49		.44 to .55	.60		.55 to .66		
Marketscan® Expected Annual percentage with any Substance Abuse use (estimated from logistic model)	.34		.30 to .38	.37		.33 to .42		
						.0786	-.0017 to .1588	

Positive difference implies increased use for FEHB plans

Sample size for the logistic model is 360,000

Table 3
Observed, Adjusted Total Spending, and Out-of-Pocket Spending for Substance Abuse services

	Preparity			Postparity			Change in spending after the implementation of Parity	
	1999	2000	2001	2002			\$	95% CI
FEHB Observed total Substance Abuse spending per Substance Abuse user	\$1,071.11	\$936.67	\$1,028.83	\$1,103.78				
<i>Marketscan® Observed total Substance Abuse spending per Substance Abuse user</i>	<i>\$1,581.63</i>	<i>\$1,464.08</i>	<i>\$1,969.28</i>	<i>\$2,083.26</i>				
Total Substance Abuse Spending							-275.51	-\$854.2 to \$303.22
FEHB Observed Out-of-Pocket Substance Abuse spending per Substance Abuse user	\$284.16	\$263.40	\$155.43	\$141.94				
<i>Marketscan® Observed Out-of-Pocket Substance Abuse spending per Substance Abuse user</i>	<i>\$254.94</i>	<i>\$204.91</i>	<i>\$246.82</i>	<i>\$218.28</i>				
Total Substance Abuse Out-of-Pocket Spending							-\$101.09*	-\$198.06 to -\$4.12

Sample size for the Seemingly Unrelated Regression is 9,175

* p<.05

Table 4
Observed and Adjusted Probability of Identification with a new Substance Abuse diagnosis

	Preparity		Postparity		Difference-in-Difference Risk of any Substance Abuse use	
	Percent	95% CI	Percent	95% CI	Percent	95% CI
FEHB Observed percentage Identified with Substance Abuse	.39		.50			
Marketscan® Observed percentage identified with Substance Abuse	.26		.28			
FEHB Expected Annual percentage identified (estimated from logistic model)	.41	.37 to .46	.54	.48 to .59		
Marketscan® Expected Annual percentage identified (estimated from logistic model)	.26	.23 to .29	.29	.25 to .32		
					.10*	.02 to .19

Positive difference implies increased identification for FEHB plans

Sample size for the logistic model is 360,000

* p<.05

Table 5
Observed and Adjusted Probability of Initiation and Engagement into Substance Abuse treatment

	Preparity		Postparity		Difference-in-Difference Risk	
	Percent	95% CI	Percent	95% CI	Percent	95% CI
FEHB Observed percentage initiated to Substance Abuse treatment	23.54		24.00			
Marketscan® Observed percentage initiated to Substance Abuse treatment	31.47		35.56			
FEHB Expected Annual percentage initiated (estimated from the logistic model)	23.4	22.0 to 24.9	23.7	22.2 to 25.1		
Marketscan® Expected Annual percentage initiated (estimated from the logistic model)	31.1	25.2 to 37.8	35.5	29.9 to 41.6		
Initiation					-4.12	-12.88 to 4.26
FEHB Observed percentage engaged in Substance Abuse treatment	10.8		10.41			
Marketscan® Observed percentage engaged in Substance Abuse treatment	11.55		15.93			
FEHB Expected Annual percentage engaged (estimated from the logistic model)	10.8	9.8 to 12.0	10.4	9.4 to 11.4		
Marketscan® Expected Annual percentage engaged (estimated from the logistic model)	11.4	7.6 to 15.4	16.10	11.6 to 20.8		
Engagement					-5.12	-11.64 to 1.16

Positive differences imply increased initiation or engagement for FEHB plans

Sample size for the logistic models is 7,059