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RESEARCH ARTICLE

The Mental Health Parity and Addiction Equity Act Evaluation Study: Impact on Nonquantitative Treatment Limits for Specialty Behavioral Health Care

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Objective. To assess frequency, type, and extent of behavioral health (BH) nonquantitative treatment limits (NQTLs) before and after implementation of the Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA).

Data Sources. Secondary administrative data for Optum carve-out and carve-in plans.

Study Design. Cross-tabulations and “two-part” regression models were estimated to assess associations of parity period with NQTLs.

Data Collection/Extraction Methods. Optum provided four proprietary BH databases, including 2008–2013 data for 40 carve-out and 385 carve-in employers from Optum’s claims processing databases and 2010 data from interviews conducted by Optum’s parity compliance team with 49 carve-out employers.

Principal Findings. Preparity, carve-out plans required preauthorization for in-network inpatient/intermediate care; otherwise coverage was denied. Postparity, 73 percent would review later by request and half charged no penalty for late authorization. Outpatient visit authorization requirements virtually disappeared. For carve-out out-of-network inpatient/intermediate care, and for carve-ins, plans changed penalties to match medical service policies, but this did not necessarily lead to fewer requirements or lower penalties.

Conclusion. After 2011, MHPAEA was associated with the transformation of BH care management, including much less restrictive preauthorization requirements, especially for in-network care provided by carve-out plans.

Key Words. Managed care, insurance, mental health parity

Behavioral health (BH) conditions, including mental health (MH) and substance use disorders (SUDs), are some of the most common reasons for years lived with a disability in the United States (McKenna et al. 2005). Nonetheless, inequities in insurance coverage for BH treatment versus medical conditions have historically limited access to care for these common and often disabling conditions. Furthermore, legal efforts to bring parity to behavioral health services have typically not extended to nonquantitative treatment limits, or NQTLs. NQTLs include direct care management provisions such as preauthorization requirements based on medical necessity review or other standards, and penalties for failure to request this prior to admission for treatment. They can also include restricted provider panels and reimbursement rates; the determination of usual, customary, and reasonable charges; exclusions based on failure to complete a course of treatment; and restrictions based on geographic location, facility type, and provider specialty, and other criteria that limit the scope or duration of benefits for services. NQTLs are critical to the impact of parity legislation (Huskamp and Iglehart 2016) because even if a plan appears to have generous benefits in terms of cost-sharing or other provisions, benefits can easily be “managed away” by vigilant care management. This study thus assesses the frequency, type and extent of BH NQTLs before and after implementation of the Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA).

BACKGROUND

Although numerous states passed “parity” laws before the mid-1990s, they varied in scope and due to regulations of the Employee Retirement Income Security Act of 1974 (ERISA), self-insured employers were exempt. Thus, advocates focused on the passage of parity laws that would be broadly applicable, with two apparent successes, the federal Mental Health Parity Act of 1996

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(MHPA) and the parity requirements for the Federal Employees Health Benefits Program (FEHBP) of 2001. Both laws, however, led to unintended consequences.

The MHPA required all large firms covering MH to provide the same annual and lifetime spending limits as for medical benefits. The percent of employers reporting parity in spending limits grew from 55 percent in 1996 to 86 percent in 1999 (post-MHPA; United States General Accounting Office 2000). However, newly compliant employers increased restrictions in other aspects of coverage, for example, by raising cost-sharing and imposing new limits on the number of covered outpatient visits and inpatient days, presumably to offset increased costs (Buchmueller et al. 2007).

Perhaps as a result, when the Office of Personnel Management started requiring parity in coverage for BH disorders in 2001 for the 8.5 million enrollees of the FEHBP, a broader array of benefit design features was included. Parity was required for all financial requirements (deductibles, coinsurance, and copayments) as well as for day and visit limits. However, little evidence was found that this led to increased access to BH care, due to the increased use of “carve-out” models offered by managed behavioral health care organizations (MBHOs), which increased direct management (Goldman et al. 2006; Busch et al. 2013).

As early federal parity efforts did not achieve desired improvements in access to care, advocates lobbied for a stronger bill, culminating in the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA). MHPAEA prohibited employer groups offering BH coverage from separately accumulating (deductibles, out-of-pocket maximums) or applying more restrictive financial requirements (e.g., coinsurance, copayments) or quantitative treatment limits (e.g., number of visits or days) than the “predominant” requirements/limits applying to “substantially all” medical/surgical benefits (Buchmueller et al. 2007). As a federal law, MHPAEA applied to self-insured and fully insured plans and it explicitly included SUD. However, the most unique aspect of MHPAEA resulted from its Interim Final Rule (IFR), which was issued February 2, 2010, and took effect for most plans on the first day of their plan year on or after July 1, 2010 (plans renewing on a calendar year cycle had to comply by January 1, 2011). The IFR extended the original provisions by clarifying that parity also applied to NQTLs. Prior to MHPAEA, Oregon’s parity law was the only one that included NQTLs. Anecdotally, those provisions were never enforced because the MHPAEA IFR was about to take effect.

NONQUANTITATIVE TREATMENT LIMITS

While the IFR did not rule out medical necessity as a criterion for coverage determination, it did prohibit health plans from differentially managing care for BH versus medical conditions. The NQTL provision, therefore, limited the ability of health plans to respond to BH cost increases resulting from more generous cost-sharing requirements or elimination of treatment limits by concomitantly increasing the stringency of care management.

In evaluating the impact of MHPAEA on the generosity of BH care benefits, the role of NQTLs is thus of particular interest. To date, however, no peer-reviewed study has looked at how MHPAEA affected NQTLs after implementation of the IFR. Horgan and colleagues compared plan-reported 2009 and 2010 data from a national sample of 939 health plans to determine the early effects of MHPAEA on benefit design before NQTL provisions came into effect. They report more use of prior authorization requirements for medical care than BH care and a decrease in NQTLs for all care from 2009 to 2010 (Horgan et al. 2016). They also note a decrease in use of carve-out plans from 2009 to 2010 (Horgan et al. 2016). The Assistant Secretary of Planning and Evaluation (ASPE) issued a report including 2010 NQTL information for a nationally representative sample of health plans of 124 large employers from Milliman's compliance testing database (Goplerud 2013). Contrary to Horgan and colleagues, they found that in 2010, 28.2 percent of plans used more stringent preauthorization requirements for BH than for medical services. However, they noted that some of this might be due to differences in clinically appropriate standards of care, which would be acceptable under the IFR.

GOALS FOR THE CURRENT STUDY

To examine how MHPAEA and its IFR affected NQTLs among commercial "carve-in" plans (where medical and BH benefits are administered within the same plan) and "carve-out" plans (where BH benefits are administered separately from medical benefits), this study uses unique datasets created by Optum, a fully owned subsidiary of UnitedHealth Group. The study was conducted in collaboration with researchers from the BH division of Optum, one of the largest MBHOs in the country. Optum contracts with approximately 2,500 facilities and 130,000 providers to serve 2,500 customers (primarily employer groups but also including medical vendors such as

UnitedHealthcare), with 60.9 million members across all U.S. states and territories. Data from 2008 to 2013 on pre-authorization requirements and penalties were obtained from claims processing databases for carve-out and carve-in plans. In addition, data were obtained from an Optum parity compliance team that interviewed customers in 2010 to assess the NQTLs used by medical vendors in order to determine the changes that would need to be made to BH NQTLs to bring carve-out plans into compliance. After each being linked to information from Optum's "Book of Business" (for renewal date, employer characteristics, number of enrollees, etc.), the three datasets were used to assess (a) the frequency, type, and extent of NQTLs pre-MHPAEA and (b) how they changed post-MHPAEA.

Our study extends the existing literature in several ways. Our study period includes data from years after the NQTL provisions took effect, our sample sizes are larger than those from prior studies, and we use information from the administrative databases actually used to process claims rather than survey data from benefit managers. Finally, we make an important distinction between "carve-in" and "carve-out" plans. For two reasons, these may have been differentially affected by MHPAEA. First, care management prior to MHPAEA tended to be quite different for carve-in versus carve-out plans. A high degree of management, intended to reduce costs by better targeting care, is the *raison d'être* of carve-out plans (Peele, Lave, and Xu 1999). Second, as described in Ettner et al. (2016), the administrative burden associated with parity compliance differed substantially. To comply with parity, carve-out plans had to first identify all of the medical vendors with whom their customers contracted and obtain detailed benefit design information about each. They then had to either match the most generous medical benefit across the board or tailor benefits to each plan offered by each medical vendor. This led to a proliferation of plans and heterogeneity in benefit design in the postparity period among employer groups choosing to retain the carve-out model for BH coverage. These differences highlight the importance of stratifying analyses by carve-out and carve-in plans.

METHODS

Data Sources

This study uses the following four proprietary datasets obtained from Optum, a fully owned subsidiary of UnitedHealth Group:

- The “Book of Business” describing plan and employer characteristics (e.g., employer size, industry, region) and information about BH benefit design, including detailed data on NQTL requirements.
- A claims processing database for carve-out plans (Facets).
- A claims processing database for carve-in plans (The Online Processing System, or TOPs).
- A unique dataset created by Optum’s parity compliance team, with specific information about NQTLs used by the medical insurers for each carve-out employer.

For analyses in Facets and TOPS data, our preperiod is 2008–2010 and our postperiod 2011–2013. For analyses of parity compliance data, our preperiod is 2010 and post-period 2011–2013. Some aspects of MHPAEA were known by insurers in time for changes to take effect by the beginning of 2010, making 2010 was a transition year, for example, for QTLs (e.g., Thalmayer et al. 2017). But NQTLs were only addressed with the IFR, which was issued in early 2010. At that time, the parity compliance team established the labor-intensive process needed to gather information about medical plans to bring plans into compliance. This effort occurred during 2010 in preparation to meet the requirement of doing so with the first renewal after July 1, 2010. As we only included plans in the sample that renewed on a calendar year basis, plans in the sample did not have to comply with the NQTL provisions of the IFR until January 1, 2011.

Study Cohorts

The Facets carve-out sample initially included all plans from all employers who contracted with Optum for BH care in a carve-out arrangement. Plans were excluded if the employer did not have data available in the Facets database (because of prior mergers); had research restrictions; was “small” (50 or fewer employees); was a collective bargaining group; did not renew on the calendar year; did not cover BH (i.e., employee assistance program only); or if the plan had no enrollees, was not in Optum’s “Book of Business,” or was non-standard (retiree or supplemental). These exclusions ensured that study plans would be subject to MHPAEA on a standard timeline. This process led to a final sample of 40 employers, with 1,527 unique plans, corresponding to 2,257 plan-years (see Figure S1 for further details).

The carve-in sample included all plans offered by employers with Optum carve-in plans during 2008–2013. After plans were excluded using the

criteria above, the final sample included 389 employers, with 3,948 plans, corresponding to 12,547 plan-years (see Figure S2).

The parity-compliance sample included the 49 employers who worked with Optum to bring BH carve-out plans into parity with medical plans in 2010. Excluded are employers who were not required to comply by 2011 (collectively bargained or supplemental plans) and employers who left Optum before completing a compliance process. Employers included often had multiple medical vendors or plan types paired with Optum BH plans. For this reason, the unit of observation is 94 employer-medical-vendor-packages (termed “packages”).

For carve-in plans, the parity compliance process was simpler, as each BH plan was integrated with a single medical plan (instead of multiple plans from multiple vendors, as was the case with carve-outs). Hence, ensuring that BH and medical NQTLs were parity-compliant did not require the same individualization. Table S2 shows the standardized MHPAEA-compliant NQTL models developed by Optum for carve-in plans, based on plan type.

Measures

For each employer-medical vendor-package, we report NQTLs in four categories—distinguishing inpatient/intermediate from outpatient care, and in-network from out-of-network services. Optum generally treated MH and SUD care in the same way, so for brevity, we report only MH estimates, noting any cases where the findings differ for SUD. Denials were coded as 100 percent coinsurance.

Data Analysis

For the parity compliance sample, cross-tabs were used to describe NQTLs in the pre- and post-parity periods. For the Facets carve-out and TOPS carve-in samples, changes in specific penalties pre- versus post-parity were tested using bivariate and multivariate procedures. First, cross-tabs with Fisher’s exact tests were used to test for associations between proportions of plans with specific penalties, and Wilcoxon tests were used to test pre- versus post-parity differences in median penalty values among plans with such a penalty. Secondly, due to skewness in the distribution of NQTLs in penalty amounts (large numbers of plans that do not use a given penalty combined with a skewed distribution among the conditional sample of plans using the penalty), two-part models (2PM) were estimated to test changes from pre- to post-parity in mean penalty

amounts among all plans. The first part was a logistic regression of the probability of imposing the penalty, and the second was a gamma regression using the log link function to test the level of the penalty among the plans imposing it. Sensitivity analyses using other distributions indicated for each outcome by modified Park tests (e.g., Poisson or inverse Gaussian) yielded substantially similar findings, so for simplicity, we report gamma estimates for all outcomes.

The two sets of estimates were then combined to derive the overall (unconditional) impact of parity period on mean penalties among all plans (including those not requiring the penalty). Covariates included employer size, industry, census region, plan type (more vs. less managed), and network status (in-network only vs. in- and out-of-network coverage). All statistical tests were two-sided and used $p \leq .05$ as the cut-off for Type I error.

RESULTS

Description of Samples

Employers in all samples were mostly very large—over half had 10,000 or more employees—and represented diverse industries (Table S1). The vast majority of plans were “administrative services only” plans, meaning they were self-insured rather than fully-insured by the insurance company (data not shown in tables).

Parity Compliance Sample

Preparity, all Optum carve-out plans required pre-authorization and ongoing review for in-network inpatient/intermediate care (Table 1). Typically an intake nurse at a hospital called a “care advocate” at Optum to get pre-approval. Authorization was determined according to a standard of “medical necessity”—Optum care advocates considered the case to determine whether proposed care was appropriate. Authorization was typically for an initial short period. If the patient remained under care, concurrent review was required to extend authorization. Claims without authorization were denied unless an appeal determined extenuating circumstances (for example, a patient in severe crisis was unable to identify him/herself at intake).

Postparity, while most plans still requested authorization prior to in-network inpatient/intermediate intake, the majority (79 percent, adding across three penalty scenarios) would review later by request (rather than appeal), and about half (48 percent) charged no penalty for a late authorization. Only

Table 1: Non-Quantitative Treatment Limits for Parity Compliance Sample of Carve-Out Employers, before, and after MHPAEA's Interim Final Rule (IFR)

	Pre-IFR Scenario												
	In-Network (N = 94)*			Out-of-Network (N = 80)*									
	N	%	PA, RR by Appeal (N = 94)	No Auth Req. (N = 25)			PA, RR by Appeal (N = 38)			Requirement Unknown (N = 77)			Total (N = 80)
				N	%	N	%	N	%	N	%	N	
<i>Post-IFR Scenario</i>													
<i>Inpatient/Intermediate Services</i>													
No authorization required	10	40	2	5.3	1	5.9	13	16.3					
Retrospective review by request and No penalty if original criteria for authorization met†	45	47.8	7	28	6	15.8	7	41.2	20	25			
Claim paid with a penalty if original criteria met‡	24	25.5	2	8	9	23.7	5	29.4	16	20			
If authorization not requested within 48 hours of intake, denied w/o mitigating circumstances	5	5.3	1	4	1	2.63	2	2.5					
Retrospective review by appeal only, and No penalty if medical necessity criteria met	5	5.3	1	2.6	2	11.8	3	3.8					
Claim paid with penalty if MN met	7	7.4	4	16	13	34.2	1	5.9	18	22.5			
If authorization not requested within 48 hours of intake, claim denied w/o mitigating circumstances	8	8.5	1	4	6	15.8	1	5.9	8	10			

Continued

Table 1. Continued

	In-Network			Out-of-Network			Total (N = 80)			
	Open-Auth. § (N = 92)	Auth. Req. after 12 Visits (N = 2)	Open-Auth. § (N = 66)	Auth. Req. All Services (N = 4)	Auth. Req. after 12 Visits (N = 2)	No Auth. Req. (N = 8)				
	N	%	N	%	N	%	N			
<i>Outpatient Services</i>										
No authorization required	11	12	20	30.3		3	37.5	23	28.8	
Authorization req. for nonroutine service only and										
RR by request, no penalty if approved	51	55.4	1	50	2	50	5	62.5	35	43.8
RR by request, paid with penalty if approved	7	7.6	4	6.1					4	5
RR by request, denied w/o mitigating circumstances	4	4.4	2	3					2	2.5
RR by appeal only, no penalty if approved	5	5.4	1	50	4	6.1	1	50	5	6.3
RR by appeal only, paid with penalty if approved	4	4.4	5	7.6					5	6.3
RR by appeal only, denied w/o mitigating circumstances	9	9.8	4	6.1					4	5
Authorization required and										

Continued

Table 1. Continued

	In-Network			Out-of-Network				
	Open-Auth. § (N = 92)	Auth. Req. after 12 Visits (N = 2)		Open-Auth. § (N = 66)	Auth. Req. All Services (N = 4)	Auth. Req. after 12 Visits (N = 2)	No Auth. Req. (N = 8)	Total (N = 80)
	N	%	N	%	N	%	N	%
RR by request, paid without penalty if approved	1	1.1						
RR by request, paid with penalty if approved					2	50	2	2.5

Notes: The smaller range of pre-IFR NQTL scenarios is compared here to the larger range of post-IFR NQTL scenarios in terms of how many plans from each pre-IFR scenario went to each post-IFR scenario. For example, for in-network, inpatient/intermediate care, all 94 plans pre-IFR required preauthorization and only offered retrospective review by appeal. Postparity, 45 of those plans would review retrospectively by request and would not charge a penalty if the criteria that would have led to service approval before treatment were met. The remaining plans went with five other post-IFR scenarios, as described in the rows. Column percentages reported. Auth., authorization; CDG, coverage determination guidelines; MN, medical necessity; PA, preauthorization required; Req, required; RR, retrospective review. Total N = 49 employers, 94 employer-medical vendor-plan type combinations.

*80 employer-medical vendor-plans had both in- and out-of-network benefits; another 14 had in-network benefits only.

†The majority of this group (78%) requested pre-authorization and used medical necessity criteria. Others requested authorization within 48 hours, and a total of 5 used CDG rather than MN criteria. These distinctions are considered not very important in the context of being able to have the claim reviewed retrospectively by request.

‡This includes a mix of plans that requested authorization prior to service, or within 24 or 48 hours of intake.

§For outpatient care, the standard parity benefit was “open authorization,” meaning a blanket authorization was given for a certain number of routine outpatient visits, after calling in a request; nonroutine care (testing, intensive outpatient) required service-specific authorization.

14 percent still denied claims for failure to preauthorize, absent extenuating circumstances.

For less generously covered out-of-network inpatient/intermediate care, 25 of 80 plans (31 percent) did not require authorization preparity. Those that did generally paid with a penalty rather than denying noncovered services; to avoid the penalty, an appeal was necessary. Postparity, the percent with no authorization requirement decreased to 16 percent, although another 25 percent would review by request retrospectively and pay without penalty if original criteria were met. The remainder did retrospective review either by request or appeal and paid with a penalty if criteria were met. Ten plans (13 percent) would deny claims for lack of preauthorization without sufficient mitigating circumstances.

Preparity, routine outpatient visits were covered using open authorization by virtually all plans (98 percent for in-network, 83 percent for out-of-network care). After a request from the member, a series of appointments were preauthorized. Specific authorization was only required for additional visits or nonroutine care (e.g., psychological testing or intensive treatment). A claim without open authorization was typically denied for in-network and paid with a penalty for out-of-network care. Post-IFR, authorization was rarely required for routine outpatient care. Only one plan required authorization for all in-network visits, and two for out-of-network visits, and all of these would review retrospectively by request.

Facets Carve-Out Sample

Table 2 reports changes in the percent of carve-out plan-years with denial or penalties for MH/SUD services received without preauthorization before and after the MHPAEA IFR, as well as the median and range of penalties among the subset of plans requiring a given penalty. The likelihood of having a coinsurance or copayment penalty for in-network outpatient care decreased postparity, but with an increase in the average magnitude of the penalty among plans requiring it. For out-of-network inpatient/intermediate services, the use of coinsurance penalties increased while the use of copayment penalties decreased. The conditional penalty levels increased for in-network outpatient and out-of-network inpatient/intermediate coinsurance, but decreased for in-network inpatient/intermediate coinsurance and out-of-network inpatient/intermediate copayments.

After regression adjustment, mean coinsurance penalties increased but mean copayment penalties decreased significantly among all plans

Table 2: Nonquantitative Treatment Limits for Mental Health Services among Facets Carve-out Employers: Observed Percent of Plan-years* Requiring Different Penalty Types, and Median and Range among Plans Requiring the Given Penalty

	% Requiring Given Penalty Type, by Parity Period [†]				Median and Range of Penalty Amount among Plans Requiring the Penalty						Wilcoxon <i>p</i> -value	
	Pre (2008–2010)		Post (2011–2013)		Pre (2008–2010)		Post (2011–2013)		Fisher <i>p</i> -value	Median		Range
	<i>n</i>	%	<i>N</i>	%	Median	Range	Median	Range				
In-network												
Additional patient coinsurance (percentage)												
An inpatient hospitalization	750	98	1,451	98.5	.485	90	15–100	80	50–100			<.01
Residential treatment	742	98	1,451	98.5	.387	90	15–100	80	50–100			<.01
Outpatient psychotherapy	463	67	391	27.5	<.01	50	10–100	90	20–100			<.01
Additional patient copayment (\$)												
Inpatient hospitalization	2	0.3	0	0.0	.118	100	100–100	– [‡]	–			–
Residential treatment	2	0.3	0	0.0	.116	100	100–100	–	–			–
Outpatient psychotherapy	6	0.8	0	0.0	.001	470	300–475	–	–			–
Out-of-network[§]												
Additional patient coinsurance (percentage)												
Inpatient hospitalization	147	21.7	460	33.0	<.01	55	10–100	60	10–100			<.01
Residential treatment	140	21.1	460	33.0	<.01	55	10–80	60	10–100			<.01
Outpatient psychotherapy	5	0.8	7	0.5	.537	65	50–70	50	5–75			.249

Continued

Table 2. Continued

	% Requiring Given Penalty Type, by Parity Period [†]				Median and Range of Penalty Amount among Plans Requiring the Penalty					
	Pre (2008–2010)		Post (2011–2013)		Pre (2008–2010)		Post (2011–2013)		Wilcoxon <i>p</i> -value	
	<i>n</i>	%	<i>N</i>	%	Median	Range	Median	Range		
Additional patient copayment (\$)										
Inpatient hospitalization	201	29.7	30	2.1	<.01	400	100–500	350	200–500	.005
Residential treatment	192	28.9	30	2.1	<.01	400	100–500	350	200–500	.007
Outpatient psychotherapy	1	0.2	0	0.0	.319	500	500–500	—	—	—

Notes: NQTLs are only shown for MH-specific services; there were analogous and almost identically matching limits for SUD services in the same plans.

[†]The unit of observation is the plan-year. Analysis excludes plan-years that do not cover a given service, have tiered benefits, and plan-years with missing data for a particular penalty type.

[‡]Preparity (2008–2010; *N* = 775 plan-years), postparity (2011–2013; *N* = 1,482 plan-years).

[§]No statistics are available—there were no plans with the given penalty in the pre- and/or post-parity period.

^{||}Among plan-years with out-of-network benefits: preparity *N* = 683 plan-years; postparity *N* = 1,403 plan-years.

for inpatient/intermediate services (Table 3). These changes among the full sample were due both to changes in the probability of imposing each type of penalty as well as to changes in the level of penalty required among plans imposing them (although changes in conditional levels were not statistically significant for inpatient/intermediate copayment penalties). For example, among the entire sample, average out-of-network inpatient coinsurance penalties increased by 19.69 percentage points, from about 8 percent to 28 percent (latter estimates not shown in Table). This was due to both a 28-percentage-point increase in the probability of requiring this type of penalty (from 15 percent to 43 percent, not shown in Table) and an increase of almost 11 percentage points (from about 53 percent to 63 percent, not shown in Table) in mean out-of-network inpatient coinsurance penalties among plans imposing them.

TOPS Carve-In Sample

Among carve-in plans, the likelihood of having a penalty increased across levels and types of care, except for out-of-network inpatient/intermediate coinsurance penalties, which decreased, and inpatient in-network services, which did not show significant changes (Table 4). Among plans imposing penalties, however, the level of penalties declined whenever changes were statistically significant. Conditional penalty levels did not change and were non-significant for both in- and out-of-network inpatient/intermediate copayment penalties.

After regression adjustment, the likelihood of imposing copayment penalties for all services and coinsurance penalties for outpatient services increased significantly both in- and out-of-network (Table 5). However, the probability of imposing coinsurance penalties for out-of-network inpatient/intermediate care declined. A more uniform pattern was seen with the mean penalty among plans requiring the penalty, which decreased significantly across all penalty types except for in- and out-of-network inpatient/intermediate copayments. Among the overall sample, the only penalty type without a significant change in the unconditional level of penalty with parity period was out-of-network outpatient coinsurance, where the increase in the likelihood of imposing a penalty appeared to have been offset by a decline in the conditional level of the penalty. For the most part, for both in- and out-of-network services, averaged across the entire sample, coinsurance penalties declined and copayment penalties increased. The exception was an increase in

Table 3: Regression-Adjusted Differences in NQTLs for Mental Health (MH) Services among Facets Carve-out Employers Associated with Parity*—Changes in Probability of Using Different Penalty Types and Changes in the Mean Penalty Amounts among Plans Requiring the Penalty and All Plans

	<i>Pre/Postparity Difference in Probability of Using Given Penalty</i>		<i>Pre/Postparity Difference in Mean Penalty, among Plans Requiring the Penalty</i>		<i>Pre/Postparity Difference in Mean Penalty Amount, among All Plans</i>	
	<i>Estimate</i>	<i>p-value</i>	<i>Estimate</i>	<i>p-value</i>	<i>Estimate</i>	<i>p-value</i>
In-network[†]						
Additional patient coinsurance (percentage)						
Inpatient hospitalization MH	−0.01	.58	−2.66	.12	−3.20	.10
Residential treatment MH	−0.01	.59	−2.89	.08	−3.42	.08
Outpatient psychotherapy MH	−0.07	.08	29.97	<.01	6.79	.08
Out-of-network^{†,‡}						
Additional patient coinsurance (percentage)						
Inpatient hospitalization MH	0.28	<.01	10.55	.02	19.69	<.01
Residential treatment MH	0.29	<.01	10.48	.02	19.92	<.01
Additional patient copayment (\$)						
Inpatient hospitalization MH	−0.18	<.01	−51.37	.23	−67.41	<.01
Residential treatment MH	−0.17	<.01	−35.75	.48	−66.18	<.01

Notes. Preparity (2008–2010; *N* = 775 plan-years) versus postparity (2011–2013; *N* = 1,482 plan-years). NQTLs are only shown for MH-specific services; there were analogous and almost identically matching limits for SUD services in the same plans.

*The unit of observation is the plan-year. Analysis excludes plan-years that do not cover a given service, have tiered benefits, and plan-years with missing data for a particular penalty type.

[†]In-network additional patient copayment penalties and all out-of-network outpatient penalties are rare (<10 observations per study period); no estimates are available.

[‡]Among plan-years with out-of-network benefits: preparity *N* = 683 plan-years; postparity *N* = 1,403 plan-years.

outpatient coinsurance penalties for in-network services. The magnitudes of the effects were again fairly substantial. For example, the likelihood of imposing an in-network copayment penalty for intermediate care increased by 17 percentage points (from 26 percent of plans imposing such a penalty to 43 percent; results not shown in table). Thus, even though the average level of the penalty did not change significantly among plans imposing it, when averaging across all plans, the mean penalty increased by about \$72 (from \$111 to \$183, not shown in table) due to the fact that more plans had the penalty.

Table 4: Nonquantitative Treatment Limits for Mental Health (MH) and Substance Use Disorder (SUD) Services among TOPS Carve-in Employers: Observed Percent of Plan-years* Requiring Different Penalty Types, and Median and Range among Plans Requiring the Given Penalty

	% Requiring Given Penalty Type, by Parity Period [†]				Median and Range of Penalty Amount among Plans Requiring Given Penalty						
	Pre (2008–2010)		Post (2011–2013)		Pre (2008–2010)			Post (2011–2013)			
	n	%	N	%	Median	Range	Median	Range	Median	Range	Wilcoxon p-value
In-network											
Additional patient coinsurance (percentage)											
Inpatient MH	4,398	70.7	4,264	69.2	80	5–100	80	5–100	30	5–100	<.01
Intermediate MH	4,128	66.7	4,214	68.5	80	5–100	80	5–100	30	5–100	<.01
Outpatient MH	933	14.8	2,751	44.6	80	10–100	80	10–100	40	5–100	<.01
Inpatient SUD	4,400	70.8	4,256	69.3	80	5–100	80	5–100	30	5–100	<.01
Intermediate SUD	4,120	66.6	4,210	68.6	80	5–100	80	5–100	30	5–100	<.01
Outpatient SUD	933	14.8	2,751	44.7	80	10–100	80	10–100	40	5–100	<.01
Additional patient copayment (\$)											
Inpatient MH/SUD	1,835	28.9	2,735	44.2	400	100–5,000	400	100–5,000	400	100–6,000	.63
Intermediate MH/SUD	1,548	24.5	2,683	43.4	400	100–5,000	400	100–5,000	400	100–6,000	.42
Outpatient MH/SUD	358	5.6	1,151	18.6	500	100–5,000	500	100–5,000	500	100–6,000	<.01
Out-of-network[§]											
Additional patient coinsurance (percentage)											
Inpatient MH	1,926	44.8	1,088	24.1	60	1–100	60	1–100	20	1–80	<.01
Intermediate MH	1,828	42.8	1,078	24.1	60	5–100	60	5–100	20	5–80	<.01
Outpatient MH	517	11.8	627	13.9	60	5–80	60	5–80	20	5–80	<.01
Inpatient SUD	11	.30	0	0	20	10–40	20	10–40	– [‡]	–	–

Continued

Table 4. Continued

	% Requiring Given Penalty Type, by Parity Period*				Median and Range of Penalty Amount among Plans Requiring Given Penalty				Wilcoxon <i>p</i> -value
	Pre (2008-2010)		Post (2011-2013)		Pre (2008-2010)		Post (2011-2013)		
	<i>n</i>	%	<i>N</i>	%	Median	Range	Median	Range	
Intermediate SUD	1,831	42.9	1,078	24.1	60	5-100	20	5-80	<.01
Outpatient SUD	517	11.8	627	13.9	60	5-80	20	5-80	<.01
Additional patient copayment (\$)									
Inpatient MH/SUD	1,387	31.6	2,249	49.7	400	100-5,000	400	100-6,000	.62
Intermediate MH/SUD	1,167	26.7	2,190	48.7	400	100-5,000	400	100-6,000	.41
Outpatient MH/SUD	226	5.1	980	21.7	500	100-5,000	500	100-6,000	<.01

*The unit of observation is the plan-year. Analysis excludes plan-years that do not cover a given service and plan-years with missing data for a particular penalty type.

†Parity (2008-2010; *N* = 6360 plan-years), postparity (2011-2013; *N* = 6,187 plan-years).

‡No statistics are available—there were no plans with the given penalty in the postparity period.

§ Among plan-years with out-of-network benefits: parity *N* = 4,109 plan-years; post-parity *N* = 4,445 plan-years.

Table 5: Nonquantitative Treatment Limits for Mental Health (MH) and Substance Use Disorder (SUD) Services among TOPS Carve-in Employers: Regression-adjusted Changes Associated with Parity*—Changes in Probability of Using Different Penalty Types and Changes in the Mean Penalty Amounts

	<i>Pre/Postparity Difference in Probability of Using Given Penalty</i>		<i>Pre/Postparity Difference in Mean Penalty, among Plans Requiring the Penalty</i>		<i>Pre/Postparity Difference in Mean Penalty Amount, among All Plans</i>	
	<i>Estimate</i>	<i>p-value</i>	<i>Estimate</i>	<i>p-value</i>	<i>Estimate</i>	<i>p-value</i>
In-network						
Additional patient coinsurance (percentage)						
Inpatient MH	-0.03	.10	-22.58	<.01	-17.37	<.01
Intermediate MH	0.00	.98	-23.13	<.01	-15.69	<.01
Outpatient MH	0.31	<.01	-22.53	<.01	9.65	<.01
Inpatient SUD	-0.03	.09	-22.63	<.01	-17.47	<.01
Intermediate SUD	0.00	1.00	-23.25	<.01	-15.73	<.01
Outpatient SUD	0.31	<.01	-22.58	<.01	9.64	<.01
Additional patient copayment (\$)						
Inpatient MH/SUD	0.13	<.01	.80	.96	56.42	<.01
Intermediate MH/SUD	0.17	<.01	3.27	.83	71.97	<.01
Outpatient MH/SUD	0.13	<.01	-80.62	.02	54.62	<.01
Out-of-network [†]						
Additional patient coinsurance (percentage)						
Inpatient MH	-0.18	<.01	-29.96	<.01	-17.29	<.01
Intermediate MH	-0.16	<.01	-30.07	<.01	-16.25	<.01
Outpatient MH	0.06	<.01	-25.89	<.01	-1.07	.22
Inpatient SUD [‡]						
Intermediate SUD	-0.16	<.01	-30.07	<.01	-16.27	<.01
Outpatient SUD	0.06	<.01	-25.89	<.01	-1.07	.22
Additional patient copayment (\$)						
Inpatient MH/SUD	0.16	<.01	-9.15	.53	61.86	<.01
Intermediate MH/SUD	0.20	<.01	-2.48	.87	80.35	<.01
Outpatient MH/SUD	0.16	<.01	-106.67	<.01	66.27	<.01

Notes. Preparity (2008–2010; $N = 6360$ plan-years), postparity (2011–2013; $N = 6,187$ plan-years). Regressions control for employer size, region, and industry, plan type, and network status (for INN services only). Standard errors are adjusted for intraclass correlation at the employer group level.

*The unit of observation is the plan-year. Analysis excludes plan-years that do not cover a given service and plan-years with missing data for a particular penalty type.

[†]Among plan-years with out-of-network benefits: preparity $N = 4,109$ plan-years; postparity $N = 4,445$ plan-years.

[‡]No statistics are available; there were no plans with the given penalty in the post-parity period.

DISCUSSION

The passage of the MHPAEA, the most far-reaching and comprehensive parity law to date, was the first federal law to specify parity in NQTLs. The current study used several unique datasets to investigate the extent to which care management-related NQTLs changed from pre- to post-parity, and how this varied between traditional carve-in versus carve-out plans offered by MBHOs. The most dramatic change in care management was for carve-out plans, in particular for in-network inpatient/intermediate care. Before MHPAEA, all carve-out plans in our sample, covering millions of Americans, required preauthorization for such care; without it, coverage was denied in the absence of compelling mitigating circumstances that prevented obtaining authorization. Postparity, only 14 percent of plans still had this policy. Most still requested authorization, but nearly three-quarters would review later by request and about half charged no penalty for a late authorization. Authorization requirements also disappeared for routine outpatient care.

For carve-out out-of-network inpatient/intermediate care, the picture was more mixed; plans changed the types of penalties to better match coverage for medical services, but this did not always lead to fewer authorization requirements or lower penalties. Similarly, for carve-in BH services, the likelihood of having a penalty for care that was not preauthorized increased in more cases than it decreased, although the conditional level of penalties decreased. It should be noted, however, that Facets penalties for carve-out plans would not be applied postparity in the cases described in Table 1, where retrospective review, either by request or appeal, could lead to approval by original criteria. In terms of outpatient psychotherapy, for some plans care was less restricted prior to parity than medical services, allowing for more self-referral. Postparity, an increase in management appears to be one-way plans could reduce access to care to contain costs.

Our findings are potentially consistent with the early findings of both the ASPE report and Horgan and colleagues, despite their contradiction of each other, if the difference between carve-out and carve-in situations is taken into consideration. Our finding of dramatically decreased authorization requirements for carve-out in-network care is consistent with the ASPE report from 124 large employers in Milliman's compliance testing database (Goplerud 2013). On the other hand, Horgan et al. reported more use of prior authorization requirements for medical than BH care in plan-reported data from 939 health plans before NQTL provisions came into effect (Horgan et al. 2016).

This was the case in our data for out-of-network care for the carve-outs and for carve-ins, where authorization penalties did not decrease significantly overall after parity. Interestingly, although their results are not stratified by plan type, Horgan et al. did ask senior health plan executives about their use of a carve-out versus carve-in arrangements for BH care. They reported a decrease in use of MBHO carve-out plans from 2009 to 2010 (Horgan et al. 2016), consistent with our anecdotal observation that many Optum carve-out customers left at the time of parity compliance. This may have been to avoid the time-consuming process to bring plans into parity with medical coverage and set up administrative systems to combine deductibles for services covered by separate entities. This impact on MBHOs may have been one of the largest unintended consequences of MHPAEA.

Our findings contribute to the accumulating results of the MHPAEA Evaluation Study. For example, Thalmayer et al. (2017) reported that while the large majority of both carve-in and carve-out plans used quantitative treatment limits (QTLs) to limit outpatient visits and inpatient or intermediate days of coverage, these limits had almost entirely disappeared postparity, suggesting that MHPAEA was highly effective at eliminating QTLs. Friedman et al. (2018) assessed financial requirements pre- and post-parity among carve-in plans, and found a mix of increases and decreases in copayments and coinsurance among most plans and a lack of evidence that MHPAEA led to more generous mental health benefits, likely because most employer-provided plans were already at parity pre-MHPAEA. Harwood et al. (2017) reported that MHPAEA was associated with modest increases in total and plan spending and outpatient utilization postparity. Finally, Ettner et al. (2016) evaluated increased treatment usage and expenditures for carve-out plans, finding little evidence that MHPAEA increased utilization, but some indication that costs shifted from patients to plans, apparently reducing patient financial burden. Of all the changes to plans that have been assessed, NQTLs are understood to have posed the largest impact to the insurance business, requiring time-consuming and complex new arrangements to achieve compliance, at least for carve-out plans. For example, just determining what policies were in place for medical benefits administered by an entirely different insurer was a challenging proposition. The impact for patients of the large-scale removal of care management restrictions is likely as significant as that of the removal of QTLs—patients are no longer at risk of denial for covered services based on the timing of when they notify the insurer of a hospital stay. Given that inpatient BH services, in particular, are presumably sought in the context of a crisis, the

removal of this administrative penalty appears to meaningfully improve access to services.

Our findings are limited by the lack of a control group to isolate the effects of parity from possible reductions in NQTLs that might have happened even in the absence of MHPAEA. However, because the parity compliance data for carve-outs were compiled expressly in response to MHPAEA, the degree to which the resulting observed changes among carve-out plans were due to MHPAEA is unequivocal. It is reasonable to conclude that such large effects would not have occurred in the absence of this legislation. Our study is also limited in including data from only one MBHO, although Optum was the largest MBHO in the United States during the study period. Furthermore, our study included both carve-in and carve-out plans, increasing the generalizability to other insurers. Another limitation is that this paper did not assess aspects of NQTLs related to providers, for example, provider reimbursement rates and restricted provider panels. Additionally, we do not know whether the strictness with which medical necessity and coverage determination guidelines are assessed by care advocates changed from pre- to post-parity.

An important extension of this work would be to assess subsequent changes in NQTLs after the implementation of the MHPAEA Final Rule in November 2013 and the Affordable Care Act (ACA) in 2014. The MHPAEA Final Rule (FR) updated and replaced the IFR as each plan renewed on or after July 1, 2014 (for most plans, which renew on the calendar year, the FR became effective on January 1, 2015). The FR retained the IFR's NQTL provisions and further clarified interactions of MHPAEA with the Affordable Care Act (Beronio, Glied, and Frank 2014; Ettner et al. 2016). The ACA went further, not just requiring parity with medical coverages, but actually requiring the provision of basic BH benefits. It also extended parity requirements to small-group plans and individual market plans through the insurance exchanges, as well as to Medicaid and Children's Health Insurance Program enrollees (Beronio, Glied, and Frank 2014; Centers for Medicare and Medicaid Services 2016). Thus, it would be important to determine whether these even broader scale changes were accompanied by any further changes in how NQTLs are used to manage services.

CONCLUSION

After 2011, MHPAEA's IFR was associated with much less restrictive preauthorization requirements for in-network care in carve-out plans at Optum, the

largest MBHO in the United States at the time. The change in NQTLs was more mixed for out-of-network care and increased in many cases for carve-in plans. The diminution of NQTLs for in-network care in carve-out plans is one of the more positive changes associated with the MHPAEA by increasing access to care.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the supporting information tab for this article:

Appendix SA1: Author Matrix.

Figure S1: Sample Flow-Chart: Number of Plan-Years, Plans, and Employers Remaining after Each Sample Inclusion Criterion, Carve-Out Plans.

Figure S2: Sample Size Flowchart, Number of "Carve-in" Plan-years (Analysis Observations), Plans, and Employers Remaining after Each Sample Inclusion Criterion.

Table S1: Descriptive Statistics on Employer and Plan Characteristics of the Three Samples.

Table S2: MHPAEA Compliant NQTL Models for Carve-in Plans, by Plan Type.