ADHD Treatment in a Behavioral Health Care Carve-Out: Medications, Providers, and Service Utilization

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Abstract

Children's mental health services are increasingly being managed by managed behavioral health organizations (MBHOs) through carve-outs. Little information is available, however, about services and interventions being received by children whose mental health benefits are carved out. Using claims data, this study explores the treatment of children with a common child psychiatric disorder, attention deficit hyperactivity disorder (ADHD). Children being treated for ADHD see a variety of provider combinations. Children diagnosed with comorbid mood or anxiety disorders are more likely to see a psychiatrist than a primary care physician or therapist, and they are more likely to be in treatment with both a psychiatrist and a therapist than with just one mental health professional. After controlling for severity indicators, costs were significantly lower for patients being treated by just a psychiatrist than for patients seeing both a psychiatrist and therapist. This finding raises the possibility that attempts to save money by "splitting treatment" may not be cost-effective.

Attention deficit hyperactivity disorder (ADHD) is a common chronic childhood disorder, affecting 3% to 5% of school-age children in the United States.[1] First described as hyperactivity in 1902,[2] in recent years the number of children being treated for ADHD has substantially increased.[1,3] Primary care providers treat the majority of these children, but psychiatrists and other mental health professionals also treat many children with ADHD.[4]

Patient characteristics and treatment differences among different types of providers are of more than academic interest as this information provides the basis for studies that seek to establish practice guidelines and improve the quality of care and clinical outcomes of children receiving treatment for ADHD.[5] Observational studies[6–8] documenting large variations in community practice patterns have begun to provide researchers and policy makers with a picture of how children with ADHD are currently being treated in routine clinical practice. They also have suggested that the population of children with ADHD being treated by mental health specialists may be different than the estimated 75%[4] who are being treated by primary care physicians (PCPs).

Specifically, children being treated for ADHD by psychiatrists, although representing a minority of children being treated for ADHD, may be more severely impaired than those being treated by PCPs.[5,9]

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This difference in case mix provides a potential explanation for the higher rate of non-stimulant psychotropic drug use seen in studies of ADHD patients being treated by psychiatrists compared with rates seen in studies of children being treated by PCPs.[5] However, these comparisons have all been across studies. No study to date has examined potential differences in case mix of ADHD patients from the same population under the care of different types of physicians practicing across the country.

Several studies[10,11] have demonstrated that practice patterns and service utilization for common adult mental health and substance abuse disorders have changed as managed behavioral health care has grown, and there are indications that the implementation of managed behavioral health care may be having an impact on the delivery of services to children and adolescents as well.[12] Although clinical researchers have specifically raised concerns about the effect of economic pressures of managed care on the treatment of ADHD,[13] little information is available about how the delivery of child mental health services has changed with the increased management of behavioral health care benefits. The historical exclusion of ADHD from many behavioral health benefit designs only increases the importance of understanding the treatment of this disorder under MBHO carve-outs, which now manage the behavioral health benefits of over 160 million Americans.[14]

One observed trend has been an increase in treatment in which the psychiatrist's role is primarily medication management while non-physician mental health therapists provide other interventions. This is in contrast to the case where the psychiatrist alone provides multiple treatment modalities.[15,16] The assumption is that splitting treatment of one case between a psychiatrist and a therapist is less expensive due to the higher cost of psychiatrists, although this assumption has not been supported by empirical data in adults.[2] This issue may be particularly relevant for ADHD, given that a combination of both psychosocial and medical interventions is recommended.[17] A recent survey[5] of psychiatrists found that the number of ADHD patients receiving treatment split between a psychiatrist and a therapist was essentially the same as the number receiving treatment from a psychiatrist alone, but the survey contained no information about costs or service utilization.

This study uses data from a large national managed behavioral health care database to contribute to our knowledge about current practice patterns and the treatment of ADHD in a general and geographically diverse population of children. The study goals include (1) describing the characteristics of patients covered by an MBHO diagnosed by their behavioral health care provider as having ADHD; (2) determining if there are differences in patient characteristics among children diagnosed with ADHD whose prescribing physician is a child psychiatrist, general psychiatrist, and a PCP; (3) determining if the pharmacologic treatment of children diagnosed with ADHD varies among children being treated by different types of physicians; and (4) exploring differences in utilization and direct treatment costs as a function of mental health provider types.

Methods

Sample selection

Claims data from 104 employer groups whose behavioral health care benefits are managed by United Behavioral Health (UBH), the third largest managed behavioral health care organization in the country, were used for the analysis. All patients' behavioral health care benefits were being managed in carve-out plans in which the mental health benefits were "carved out" and managed separately from other medical benefits. Details about the full database and benefit design are described in Sturm and McCulloch.[18] All eligible employer plans covered a full range of behavioral health services including treatment for ADHD. This type of coverage plan allows families to access child mental health care without a PCP referral after obtaining preauthorization from a UBH care manager. The overwhelming majority of families who seek specialty behavioral health care for their children have the opportunity to receive it, as less than 1% of new cases requesting psychotherapy or medication evaluation are denied by UBH care managers.[19]

Patients with an ADHD diagnosis were identified from the behavioral health claims data and were selected for study if they had received a clinical review related to their ADHD diagnosis between January 1996 and March 1998, were less than 15 years of age at the time of their first clinical review, and their coverage continued for at least 1 year following the clinical review. A year was chosen in order to provide a time frame of sufficient length to capture a more complete picture of service utilization in a chronic disorder for which care may be episodic, while limiting the sample bias introduced by the selective disenrollment of the most severely ill children. Clinical reviews contain clinical information gathered by UBH from mental health providers on all children who receive a new assessment or evaluation or for whom more than the initially authorized sessions are requested. As a result, almost all children actively engaged in ADHD treatment with mental health providers have information from at least one clinical review (Joyce McCulloch [UBH], personal communication, October 29, 1999), with the majority of children in the sample (53.5%) having received three or more clinical reviews. However, children whose entire ADHD care was being managed by a non-mental health physician under their medical coverage, as well as children who had only one or two sessions with a mental health provider and were never formally evaluated, were not eligible for selection to this study. Patients with a comorbid psychotic disorder were excluded, as were patients with claims in which the majority of provider information was missing.

Measures

- *Medication*—Based on information from patients' clinical reviews throughout the defined study period, patients were classified as never having been on medication, as being on one medication, or as being on multiple medications (either simultaneously or in succession). In addition, actual medications were divided into the following categories: stimulants; tricyclic antidepressants (TCAs); clonidine; bupropion; non-TCAs (excluding bupropion); and mood stabilizers (including lithium, valproic acid, and carbamazepine).
- *Comorbidity*—ADHD patients were classified as having a comorbid disorder if in the year subsequent to their initial review they had a claim with a diagnosis of conduct disorder; oppositional defiant disorder (ODD); major depression; dysthymia; bipolar disorder; anxiety disorder; obsessive-compulsive disorder; panic disorder; substance abuse or dependence; or a developmental, learning, or tic disorder. Because children with diagnoses of major depression, dysthymia, bipolar disorder, anxiety disorder, obsessive-compulsive disorder, and panic disorder often received several of these diagnoses in a relatively short time period, raising concerns about diagnostic specificity, these diagnoses were combined into one category referred to as mood/anxiety disorders. A similar rationale resulted in children with conduct disorder and ODD diagnoses being classified as conduct disorders.
- *Recency of diagnosis*—The length of time between patients' initial ADHD diagnosis and first clinical review varied. Patients who were diagnosed within 90 days prior to their first clinical review were identified as having had a recent diagnosis.
- *Provider type*—Physician mental health providers were classified as either child psychiatrists or general psychiatrists based on information from the provider data, while all non-medical mental health providers, including both doctoral- and master's-level therapists, were classified as therapists. No specific information about specialty was available for non-psychiatric physicians, the majority of whom are likely pediatricians or family practitioners. Thus, all were classified as PCPs, despite a few of these physicians likely being specialists in non-mental health fields such as neurology.
- *Treatment type*—Patients were classified into one of six treatment categories based on the proportion of visits they had to each provider type. The six categories of treatment are child psychiatrist and therapist, child psychiatrist only, general psychiatrist and therapist, general psychiatrist only, PCP and therapist, and therapist only. Patients on medication with no record

of claims for psychiatrist visits (and therefore not receiving treatment or medication from a psychiatrist) were assumed to be receiving their medication from a PCP.
- *Number of sessions*—Number of sessions is defined as the number of distinct outpatient visits occurring within the year subsequent to the first clinical review.
- *Treatment duration*—Duration was calculated as the length of time between the date of the first clinical review and the last date of service observed (up to one year later).
- *Intensity*—Patients who had any claims for inpatient, residential, or partial hospital care during the year being considered were classified as having had intensive treatment.
- *Co-payment*—Plans with outpatient co-payments were distinguished from plans without co-payments.
- *Costs*—Costs were calculated as the total direct cost of treatment (both insurance and patient costs) for all outpatient claims during an entire year following the first clinical review.

Analyses

The distributions of patient characteristics including gender, age, recency of diagnosis relative to clinical review date, existence of intensive level treatment, comorbidity, class of medications used, use of multiple medications, provider/treatment type, number of sessions, duration of treatment, and co-payment were examined. For two of these characteristics—comorbidity and class of medications used—patients could fall into more than one category. Given the small number of patients in comorbid categories other than mood/anxiety disorder and their equal distribution among provider types, no formal analysis was carried out for these subgroups. Differences in provider types according to the presence of a comorbid mood/anxiety diagnosis were tested for using the chi-square test of independence. In addition, the subset of the sample receiving medications was stratified by presence of comorbid mood/anxiety disorders, and the chi-square test of independence was used to test for differences in the class of medications according to physician type. The frequency of patients receiving one medication versus more than one medication according to physician type also was examined. Finally, regression analysis was used to model total outpatient cost and number of sessions as a function of the number and type of mental health providers, controlling for other relevant variables. A sensitivity analysis performed modeling the log transformation of the dependent variables found similar results; thus results for the untransformed variables are presented for ease of interpretation.

Results

Sample characteristics

Using the selection criteria outlined in the methods above, a total of 2,137 patients were selected for study. The average age in this sample was 10 years, and there was no significant difference in the age of children seeing different provider combinations (mean age 10.1, 10.1, and 9.9 for children seeing a psychiatrist and therapist, psychiatrist alone, and therapist alone, respectively). The majority of children were male (78.2%, n = 1,671), and most (68.5%, n = 1,464) had been diagnosed with ADHD within 90 days previous to their first clinical review. Other sample characteristics are listed in Table 1. Less than 10% of the sample had received intensive level care, and slightly more than half of the patients had no comorbid diagnoses. The most common type of comorbid diagnoses was mood/anxiety disorders. Stimulants were the most common class of medication, nearly three fourths of the sample were taking at least one medication, and 32.1% (n = 686) had been prescribed more than one medication. The mean age of children not receiving any medication (9.5 years) was slightly lower than the mean age of children receiving a single medication (10.1 years) or multiple medications (10.4 years). Of the 57% (n = 1,218) of the sample seeing a psychiatrist, slightly over one third (n = 450) also were being seen by a therapist.

Table 1
Sample patient characteristics

Characteristic	%	*n*
Gender		
Male	78.2	1,671
Recency of ADHD diagnosis		
Within 90 days of review	68.5	1,464
Comorbid diagnosis		
Mood/anxiety	28.4	607
Conduct	5.7	122
Learning	5.2	112
Developmental	2.0	43
Tic	1.5	31
Substance abuse	1.4	29
Number of medications		
One	41.3	883
More than one	32.1	686
Medications used		
Stimulant	63.3	1,353
Antidepressants (non-TCA)	17.5	373
Clonidine	10.1	215
TCAs	8.4	179
Bupropion	8.2	176
Mood stabilizers	7.9	168
Type of mental health treatment		
Psychiatrist and therapist	21.1	450
Psychiatrist only	35.9	768
Therapist only	43.0	919

ADHD, attention deficit hyperactivity disorder; TCA, tricyclic antidepressants

Table 2 presents the number of sessions/year and treatment duration stratified by type of treatment. The average number of sessions for the entire sample is 9.5, but there is a large difference in the number of sessions between patients who are seeing one versus two mental health providers. Patients whose only mental health treatment was from a therapist averaged 7.6 sessions; patients receiving mental health treatment from only a psychiatrist averaged a similar 8.2 sessions. However, patients whose treatment was split between a therapist and a psychiatrist averaged almost twice as many sessions. Duration of treatment also varied substantially between the groups. The average duration of treatment of patients seeing a psychiatrist alone or in conjunction with a therapist was approximately 45% and 82% longer, respectively, than patients whose sole mental health provider was a therapist. The average number of sessions per week was not calculated, since the distribution of sessions is not evenly distributed across the treatment period, thus an average would be a misleading representation of treatment intensity.

Table 3, in which provider type is stratified by presence of a comorbid mood/anxiety disorder, shows that patients with comorbid mood/anxiety disorders were significantly less likely to be seeing a therapist alone or in conjunction with a PCP, but more likely to be seeing a psychiatrist. Of the children with no comorbid mood/anxiety disorder, 15.2% were receiving treatment from both a

Table 2
Mean number of sessions and treatment duration

	Sessions/year (SD)	Duration in days (SD)
Overall sample	9.5 (9.4)	195.0 (123.8)
Psychiatrist and therapist	15.6 (11.9)	264.8 (100.7)
Psychiatrist only	8.2 (8.5)	213.7 (119.1)
Therapist	7.6 (7.3)	145.2 (116.9)

SD, standard deviation

psychiatrist and a therapist. However, 35.7% of children with a comorbid mood/anxiety disorder were receiving treatment from both a psychiatrist and a therapist.

Also of interest is whether patients being seen by the three types of physicians were receiving different medications. Table 4 lists the medication categories and the physician types for patients on medications (n = 1,063) with and without a comorbid mood/anxiety disorder. Among patients with a comorbid mood/anxiety disorder, children being treated by general psychiatrists are more likely to receive both TCAs and non-TCAs than children being treated by child psychiatrists; children whose medications are being handled by a PCP are least likely to receive these medications. Children seeing general psychiatrists also are more likely to receive non-TCAs or mood stabilizers than children seeing child psychiatrists; children seeing PCPs are least likely to receive these medications. Patients without a comorbid mood/anxiety disorder seeing either a child or general psychiatrist are more likely to receive clonidine or bupropion than children being treated by a PCP. In the analysis of multiple medications, children with and without a comorbid mood/anxiety disorder receiving medications from PCPs tended to be less likely to be on multiple medications (results not shown).

Finally, two multivariate regressions were performed to examine the effects of receiving mental health treatment from a psychiatrist or therapist alone versus receiving treatment from both a

Table 3
Provider type by comorbid mood/anxiety disorder

	Comorbid mood/anxiety disorder			
	Absent n = 1,530		Present n = 607	
Provider type	**%**	***n***	**%**	***n***
Child psychiatrist*	36.7	562	45.1	274
Child psychiatrist and therapist†	11.9	182	22.4	136
Child psychiatrist only*	24.8	380	22.7	138
General psychiatrist	13.7	210	18.3	172
General psychiatrist and therapist†	3.3	51	13.3	81
General psychiatrist only*	10.4	159	15.0	91
Primary care provider and therapist*	25.8	395	15.7	95
Therapist only*	23.7	363	10.9	66

*Indicates significant χ^2 ($p < .001$) test for differences between comorbid groups.
†Indicates significant χ^2 ($p < .01$) test for differences between comorbid groups.

Table 4

Type of drugs prescribed by physician type and comorbid mood/anxiety disorder (categories are not mutually exclusive)

	Comorbid mood/anxiety disorder															
	Absent								**Present**							
	Child *n* = 490		**General *n* = 178**		**PCP *n* = 395**		**Total *n* = 1,063**		**Child *n* = 247**		**General *n* = 164**		**PCP *n* = 95**		**Total *n* = 506**	
Medication	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***
Stimulant	89.8	440	86.0	153	90.9	359	89.6	952	81.4	201	77.4	127	76.8	73	79.3	401
Antidepressants (non-TCA)	13.5	66	23.0	41	7.6	30	12.9	137*	42.5	105	57.9	95	37.9	36	46.6	236*
Clonidine	15.3	75	17.4	31	7.9	31	12.9	137*	15.8	39	17.1	28	11.6	11	15.4	78
TCA	8.2	40	16.3	29	5.3	21	8.5	90*	17.8	44	18.3	30	15.8	15	17.6	89
Bupropion	10.2	50	8.4	15	2.8	11	7.2	76*	20.7	51	23.2	38	11.6	11	19.8	100
Mood stabilizer	7.6	37	6.7	12	3.8	15	6.0	64	19.4	48	29.9	49	7.4	7	20.6	104*

*Indicates significant c^2 ($p < .001$) test for differences among the three groups.

PCP, primary care physician; TCA, tricyclic antidepressant

psychiatrist and therapist. Outpatient costs and number of sessions were modeled as a function of treatment category while controlling for other factors related to severity of illness and duration of treatment. Table 5 shows the results of these regression analyses. Having a plan with a co-payment resulted in significantly lower overall outpatient costs. Recency of diagnosis, presence of a comorbid mood/anxiety disorder, receiving multiple medications, and treatment duration were all significantly related to increased outpatient costs. Controlling for these factors, receiving mental health treatment from both a psychiatrist and therapist resulted in more mental health sessions and was more costly than receiving mental health treatment from a therapist or psychiatrist alone.

Discussion

To our knowledge, this is the first published description of ADHD treatment for children whose behavioral health care is carved out from their comprehensive health plan and is managed by an MBHO.

Providers

Children in the sample received treatment from a number of different types and combinations of providers, but the type of provider varied depending on whether the child had or had not been diagnosed with a comorbid mood/anxiety disorder. The low prevalence of PCPs in the sample compared with what is commonly reported in the literature is not surprising, and it is the result of the sample being selected from children in ongoing treatment with mental health professionals. While almost half of ADHD patients without a comorbid mood/anxiety disorder are treated by therapists alone or in conjunction with a PCP, this combination of providers sees far fewer patients who have

Table 5
Regression results for total outpatient costs and sessions

	Modeled outcome			
	Outpatient costs		Outpatient sessions	
Covariate	Coefficient	95% CI	Coefficient	95% CI
Age	–4.51	–18.85, 9.84	–0.07	–0.27, 0.14
Recent diagnosis	66.74*	4.16, 129.32	1.24*	.473, 2.00
Intense therapy	90.64	–63.12, 244.39	2.20*	0.12, 4.27
Comorbid mood/anxiety	140.30†	73.32, 207.28	1.99†	1.09, 2.90
Comorbid other	67.85	–21.70, 157.40	1.02	–0.39, 2.44
One medication	–26.07	–71.54, 19.40	–.02	–0.72, 0.67
Multiple medications	90.35†	41.16, 139.54	1.79†	1.01, 2.58
Psychiatrist alone	–276.65†	–371.37, –181.94	–4.67†	–5.92, –3.42
Therapist alone	–110.95†	–177.95, –43.94	–1.95†	–2.94, –0.96
Treatment duration	2.39†	2.06, 2.73	.04†	0.03, 0.04
Co-payment	–88.18*	–171.86, –4.50	–1.49*	–2.52, –0.46
Constant	288.93†	79.20, 498.66	4.32*	1.51, 7.12

*Indicates significance at $p < .05$.
†Indicates significance at $p < .001$.
CI, confidence interval

a comorbid mood/anxiety disorder in addition to their ADHD. In contrast, both child and general psychiatrists treat higher percentages of children with ADHD and a comorbid mood/anxiety disorder, and they are more likely to treat these more complicated cases in collaboration with a therapist. These results are consistent with earlier studies and provide strong support for the argument put forward by Zarin[5] and Bussing[20] and their colleagues, among others, that the case mix seen by psychiatrists is significantly different and more severely ill than that seen by PCPs.

Comorbidity

The rate of comorbidity found in the sample was somewhat lower than that found in other community samples of children being treated for ADHD.[5] It is possible that providers document comorbid diagnoses for these types of claims only if they believe it will influence certification or reimbursement. An alternative explanation is that the privately insured population being treated for ADHD by mental health providers may be systematically different than that being treated in the public system. This alternative, if valid, has important implications since managed care techniques developed in the private sector are increasingly used in the public sector.

Pharmacotherapy

Despite public concerns about the overmedication of children with ADHD, a substantial number of children being treated for ADHD in the sample had not received any medication (20%). The fact that many children are not on medications suggests that observational studies that have focused on the pharmacologic treatment of ADHD by physicians may be missing an important and potentially under-treated population.

The greater use of antidepressants in children being treated by general psychiatrists compared with child psychiatrists was somewhat surprising; it may reflect either general psychiatrists' relative lack of familiarity with other medications commonly used to treat ADHD, or more severe levels of anxiety or depression in the subset of ADHD patients being treated by general psychiatrists. The use of a wider range of psychotropics in children being treated by psychiatrists in comparison to PCPs is not surprising given psychiatrists' greater familiarity with these medications. However, as stimulants are the only class of medication with a Food and Drug Administration indication for treatment of ADHD, the common use of other medications argues for the need for more outcome studies to establish their effectiveness in the treatment of ADHD.

Cost and utilization

Clearly, the utilization and direct costs of outpatient treatment were greater for those patients receiving treatment from both a therapist and psychiatrist than for patients whose treatment was provided by a psychiatrist alone. Interpreting the cost and utilization results for patients seeing only therapists for their mental health care is more complicated, as a substantial number of these patients are being treated concurrently by PCPs. As a result, the total utilization and cost of ADHD treatment for children in this category is likely higher than what was observed.

The meaning of the last finding—the cost of services is lower in cases in which the psychiatrist is the sole provider of care—is interpreted conservatively. Clearly, this finding runs contrary to current opinion, which holds that using therapists rather than psychiatrists for non-pharmacologic interventions should lower the overall cost of an episode of care. However, the findings are consistent with Goldman et al's[21] findings that integrated treatment is less costly than split treatment of depressed adult patients. The differences in costs and utilization we observed may in fact be the result

of different provider combinations. However, there are other plausible explanations for this result that we cannot rule out.

First, access to care among the groups may differ. For example, limited access may result in some patients terminating their treatment prematurely or being unable to receive all the sessions that they need. Limited access is more often a concern with respect to psychiatrists rather than therapists; there are fewer psychiatrists, and it is particularly a concern with access to child psychiatrists given their scarcity in many parts of the country. Thus, the lower costs seen in the psychiatrist-only group could be the result of limited access to psychiatrists. However, limited access is more commonly thought to affect whether a patient is able to see a psychiatrist at all rather than the frequency and duration of treatment received. The inclusion of treatment duration in the regression attempts to address the issue of limited access by ensuring that the findings were not just a function of variations in treatment duration among the groups.

The possibility that the populations being treated are different with respect to the amount of treatment needed due to illness severity could not be completely controlled for. It is possible that more severely ill patients may be self-selecting into treatment with both a psychiatrist and a therapist. In this case, the increased cost and utilization seen in the psychiatrist/therapist group may be a reflection of increased need. Although a complete clinical profile of the patients is not available, attempts were made to control for severity of the child's illness in the regression with the inclusion of comorbidities, amount of different medication use, and history of intensive treatment.

Limitations

All patients' behavioral health care was managed by a single organization, and the findings may not generalize to plans with a different management style or to plans with more restrictive benefits. UBH's management of ADHD treatment also may influence the findings, and the findings may not be generalizable to care that is not managed. Limitations related to the use of claims data include the possibility that some treatment, such as out-of-plan treatment or treatment sessions affected by a deductible, might not be observed. In addition, there is generally no incentive for clinicians to record information about comorbid diagnoses on claims data, so the rates of comorbid diagnoses are likely conservative. Still, almost 50% of the children in the sample were assigned a comorbid diagnosis by their clinician, suggesting that providers may be reporting a substantial amount of the clinically relevant comorbidity, even in the absence of any incentive to do so. Comorbidity and polypharmacy are used as the best proxies for clinical severity/complexity available in the claims data, but are likely not as accurate as more clinical measures.

As the information was limited to only those children who had received a clinical review, children who had only one or two sessions with a mental health provider and the many children whose entire ADHD care is from their primary care physician were not included in the sample. The information on each clinical review is provided by a mental health provider at a single point in time, so any medications prescribed subsequent to a child's last review would not be included in the analysis. However, most changes in treatment regime precipitate the need for a clinical review. As mentioned previously, there is no way in which to judge whether the treatment being provided is appropriate and sufficient. Likewise it is not known whether unobserved variables related to patient selection into different types of treatment might affect the results. The description of costs by provider types only incorporates the costs of outpatient treatment and does not include either pharmacy costs or the costs of intensive treatment, costs that would have to be included in any comprehensive analysis of ADHD treatment. Finally, without outcomes data, one cannot make any observations about whether children receiving the different types of treatment have the same clinical outcome, or whether the differences in cost or number of sessions observed are reflected in the clinical outcomes obtained.

Implications for Behavioral Health Services

Despite these limitations, this study makes several important contributions. MBHOs have grown dramatically over the last decade to now cover more than 162 million Americans[14]; reporting on the nature and cost of ADHD care in MBHOs fills an important gap, providing information about how privately insured children with ADHD are currently being treated by mental health providers.

The results provide further support for the observation that children being treated by psychiatrists are a more severely impaired group than those being treated by primary care physicians. Researchers should take differences in patient populations among different provider types into account when designing clinical trials, while health care administrators and policy makers must be aware of these differences when allocating resources or establishing guidelines that will directly affect treatment of children with ADHD.

The variation in type and quantity of psychotropics, as well as the frequent use of medications with unlabeled indications, suggests that much of the pharmacologic treatment of ADHD occurring in the community involves medications whose safety and efficacy in ADHD treatment have not been conclusively established. Further outcomes research in this area is needed so that clinicians can make empirically informed treatment decisions when prescribing psychotropics and treatment guidelines can better address the use of the many psychotropics currently being prescribed to children with ADHD.

Last, this study provides the first empirical evidence suggesting that the policy of using both therapists and psychiatrists in the treatment of ADHD may be more costly than having a single clinician providing both therapy and medication management. This finding has significant policy implications at a time when insurers and public officials are concerned about most effectively allocating scarce mental health dollars. To answer these questions, future research will need to explore not only whether the costs of ADHD treatment by different provider combinations, but also whether treatment of ADHD by different provider combinations results in significantly different outcomes. The results highlight the need for further research into the effectiveness of current community ADHD treatments. Only outcomes and cost-effectiveness research will be able to answer whether there is a clinical benefit to having multiple mental health providers, and in what way this approach affects the overall cost of treatment.

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