Trends in Psychotropic Medication Costs for Children and Adolescents, 1997-2000

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**Objective:** To examine trends in psychotropic medication utilization and costs for children and adolescents between January 1, 1997, and December 31, 2000.

**Methods:** Pharmacy claims were analyzed for mental health users 17 years and younger (N=83,039) from a national database covering 1.74 million privately insured youths. Utilization rates and costs for dispensed medications were compared across psychotropic drug categories and individual agents over time.

**Results:** Overall use of psychotropic drugs increased from 59.5% of mental health outpatients in 1997 (a 1-year prevalence of 28.7 per 1000) to 62.3% in 2000 (33.7 per 1000), a 4.7% increase. The largest changes in utilization were seen for atypical antipsychotics (138.4%), atypical antidepressants (42.8%), and selective serotonin reuptake inhibitors (18.8%). The average prescription price increased by 17.6% ($7.90 per prescription), a change in turn attributed to a shift toward costlier medications within the same category (55.1% of the increase, or $4.35) and to pure inflation (44.9% of the increase, or $3.55; P for trend <.001 for all comparisons). Almost half (46.7%) of the $2.7 million gross sales differential was accounted for by only 3 of the 39 drugs identified (amphetamine compound, risperidone, and sertraline), and 75% was accounted for by 7 drugs (the previous 3 and bupropion, paroxetine, venlafaxine, and citalopram).

**Conclusions:** Psychotropic drug expenditure increases during the late 1990s resulted from more youths being prescribed drugs, a preference for newer and costlier medications, and the net effects of inflation. The impact of managed care and pharmaceutical marketing effects on these trends warrants further study.


The use of psychotropic medications in children has become a highly visible issue, receiving regular attention from academics (for a recent summary, see Jensen et al), policymakers, and the lay press alike. In contrast to the controversial and at times charged reactions that the topic can engender, reliable national estimates of the extent of pediatric use of psychotropic drugs have only recently started to become available. Previous studies have documented that most psychotropic medications are not prescribed by mental health specialists but rather by general practitioners, a pattern that is certainly applicable to stimulants, the most widely used psychotropic drug class for children: in 1995, pediatricians prescribed 50% of stimulants, family practitioners 20%, and psychiatrists only 13%.

The financial implications of pediatric pharmacotherapy have gone largely unexamined, an important shortcoming given that in the US expenditures for prescription drugs have continued to be the fastest growing component of health care across all ages. The financial burden of medication-related expenditures is substantial: whereas overall health costs increased by 7% in 2000, prescription drug spending grew by 15%. For example, Medicaid spending on prescription drugs more than tripled in the 1990s, from $4.8 billion (6.6% of total Medicaid costs) in 1990 to $17.0 billion (9.4% of total Medicaid costs) in 1999.

The most recent national data on mental health utilization and costs specific for children and adolescents are from 1998, when overall national expenditures were estimated to be $11.7 billion ($172 per child). Outpatient services accounted for 57% of the total costs, inpatient services for 33%, and psychotropic drugs for 9%. A study based on privately insured youths showed that during the same interval (1997 to 2000) that outpatient and inpatient psychiatric costs for American youths decreased (by 18.4% and 14.4%, respectively), medication-related expenditures increased by 12.1%. Although it is plausible that higher psychotropic drug use may relate to cost savings in overall mental health services (by decreasing or obviating the need for other services, such as psychotherapy), no pedi-
Methods

Study Design

A cross-sectional design for each of 4 years (1997-2000) was used to characterize psychotropic medication utilization and cost trends for youths 17 years and younger.

Data Source

We used a research database (MarketScan; Medstat, Ann Arbor, Mich) to describe patterns of health care utilization and costs. The database, a publicly available fee-for-service medical and prescription claims resource, contains claims information for individuals nationwide who are insured through the benefit plans of large employers and includes more than 200 different insurance companies. The working sample consisted of all individuals in the database 17 years and younger who had a claim for mental health services and possible pharmacy claims data available during the study (N=850,390). We specifically did not exclude children younger than 3 years, as there is epidemiologic evidence for increasing rates of psychotropic medication use in this age group. Demographic information on the entire enrolled population (N=1,733,486) was also available. Individual information was stripped of any personal identifiers, stored anonymously, and exclusively referenced through study-specific unique identifiers following published guidelines.

Study Population and Procedures

The number and 1-year prevalence of enrolled children receiving mental health services and psychotropic medications were calculated. Mental health claims were defined as those with a diagnosis within the 290.00 to 319.99 range of International Classification of Diseases, Ninth Revision, codes. Potentially relevant codes (eg, 799.2 for “nervousness” or 780.5 for “sleep disturbance”) were not included, in keeping with earlier methods. In contrast to that earlier study, in which individual youths were the primary unit of analysis, this study focuses on prescriptions. Thus, sociodemographic and diagnostic trends seen during the study (such as an increase in the diagnosis of bipolar disorder) are examined in detail in that complementary study.

Psychotropic medications were identified on the basis of a comprehensive National Drug Code registry and were assigned to 1 of 6 drug classes: (1) α-agonists, (2) antidepressants, (3) antipsychotics, (4) mood stabilizers, (5) stimulants, and (6) anxiolytics and sedative-hypnotics. Antihistamines (including hydroxyzine, hydrochlorothiazide), β-blockers, and anticholinergic agents were specifically excluded from analysis given the potential for ambiguity in determining their use as psychotropic agents.

Charges associated with pharmacy claims were measured as the actual paid amounts instead of the billed charges to provide a more accurate measure of cost. Paid amounts included patient payments (deductibles or copayments) and payments made by the patient’s insurance plan(s). Costs were adjusted for inflation using the medical component of the Consumer Price Index, with all amounts expressed as 1997 dollars.

After calculating costs for psychotropic medications as an aggregate annual amount, costs were estimated across psychotropic drug category and specific agent. Costs were estimated as overall and per-prescription amounts. Each drug’s share of utilization was then calculated by dividing the number of prescriptions filled by (1) the number of all prescriptions in that category and (2) the overall number of prescriptions filled in that year. Each drug’s share of overall and class-specific utilization, as well as mean prescription price, was compared across the 4 years of study.

Next, the gross difference in psychotropic drug sales was calculated between 2000 and 1997, and the proportion of the total difference attributable to each medication category and each individual agent was determined. Each drug’s attributable proportion served as a weighting factor by which change in price and change in category utilization was multiplied. By summing the weighted price changes, an overall estimate of the impact of medication inflation was obtained; a measure of medication shift (from one agent to another within the same category) was similarly arrived at by summing the weighted utilization changes. The fraction of overall psychotropic drug sales that could be attributed to an increase in the number of prescriptions filled was calculated by multiplying the difference in the number of prescriptions by the mean prescription price across the first and last study years. This amount, in turn, was divided into portions attributable to (1) larger membership enrollment, (2) changing proportion of medicated enrollees, and (3) enrollees continuing drug treatment for longer periods.

Data Analysis

Linear trends over time were assessed for categorical variables by using the Cochran Mantel-Haenszel χ² test (df=1) and for continuous variables by using general linear models (df=3). Cost trends were calculated based on log-transformed amounts.

Results

Population Characteristics

Demographic and clinical characteristics of outpatient mental health users in this study group have been described in detail previously. Briefly, of 352,413 individuals 17 years and younger with linked pharmacy data who were enrolled in 1997, 17,670 (5.0%) received outpatient mental health services vs 26,677 (5.6%) of 473,954 in 2000, representing a 34.5% increase in membership enrollment and a 12.2% increase in outpatient mental health utilization rates.

Patterns of Psychotropic Medication Use

More than half of all outpatient users (60.1% across the 4 study years) were prescribed at least 1 psychotropic medication during any given year. Table 1 gives the 1-year prevalence of psychotropic drug use across the various medication categories. In addition to giving the proportions of outpatient mental health users dispensed psychotropic agents, 1-year prevalence per 1000 enrollees are also given, using the number of annual enrollees with pharmacy benefits as the denominator. The overall use of psychotropic drugs increased from 59.5% of mental health outpatients in 1997 (a 1-year prevalence of 28.7 per 1000) to 62.3% in 2000 (33.7 per 1000), representing a 4.7% increase. The largest increases in utilization were seen for atypical antipsychotics (138.4%), other antidepressants (42.8%), and...
Table 1. Psychotropic Medication Prevalence by Drug Category Among MarketScan® Enrollees Aged 0 to 17 Years

<table>
<thead>
<tr>
<th>Psychotropic Drug Category</th>
<th>1997 (n = 17,670)</th>
<th>2000 (n = 26,677)</th>
<th>Change in Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (n = 17,670)</td>
<td>10,516 (59.5)</td>
<td>16,622 (62.3)</td>
<td>4.7</td>
</tr>
<tr>
<td>n-agonists</td>
<td>818 (4.6)</td>
<td>1,207 (4.5)</td>
<td>-2.3</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>4,408 (25.0)</td>
<td>7,480 (28.0)</td>
<td>12.4</td>
</tr>
<tr>
<td>SSRIs</td>
<td>2,932 (16.6)</td>
<td>5,257 (19.7)</td>
<td>18.8</td>
</tr>
<tr>
<td>TCAs</td>
<td>1,053 (6.0)</td>
<td>930 (3.5)</td>
<td>-41.5</td>
</tr>
<tr>
<td>Other</td>
<td>1,237 (7.0)</td>
<td>2,667 (10.0)</td>
<td>42.8</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>565 (3.2)</td>
<td>1,344 (5.0)</td>
<td>57.6</td>
</tr>
<tr>
<td>Atypical</td>
<td>329 (1.9)</td>
<td>1,184 (4.4)</td>
<td>138.4</td>
</tr>
<tr>
<td>Typical</td>
<td>156 (0.9)</td>
<td>98 (0.4)</td>
<td>-58.4</td>
</tr>
<tr>
<td>Mood stabilizers</td>
<td>972 (5.5)</td>
<td>1,660 (6.2)</td>
<td>13.1</td>
</tr>
<tr>
<td>Stimulants</td>
<td>6,845 (38.7)</td>
<td>10,345 (38.8)</td>
<td>0.1</td>
</tr>
<tr>
<td>Anxiolytics</td>
<td>685 (3.9)</td>
<td>1,162 (4.4)</td>
<td>12.4</td>
</tr>
</tbody>
</table>

Table 2 presents the costs and clinical share (overall and by category) of all psychotropic medications identified. As anticipated, stimulants were the most commonly prescribed class, accounting for 45.6% of all psychotropic prescriptions in 2000. Despite the large volume of stimulant prescriptions filled, they represented a relative reduction (–14.4%) from the 1997 total share, a reflection of the rapid rise in the prescription of other nonstimulant medications to this age group, notably, antidepressants and mood stabilizers. Indeed, antidepressants increased their share of all psychotropic drug prescriptions by 16.5%, a mean change that does not capture the wide variability seen across subcategories: the atypical antidepressant and SSRIs shares increased by 61.4% and 27.9%, respectively, compared with the large reduction (–51.4%) seen for TCAs. Mood stabilizers had an increase in their share (13.7%) and accounted for a larger volume of psychotropic prescriptions (8.6% in 2000) than did antipsychotics (3.7%). The latter experienced a radical shift from traditional to atypi-

AGGREGATE PSYCHOTROPIC MEDICATION EXPENDITURES AND USE

Table 2 reports aggregate medication use and expenditures. Gross expenditures increased from $4.1 million in 1997 to $6.8 million in 2000, a 65.2% increase. The increase represents more than just a larger enrollment base, as evidenced by the fact that psychotropic drug expenditures per enrollee increased by 22.8%. During this time, the average prescription increased in price by 17.6% ($7.90 per prescription) (P for trend < .001). Although 46.7% more prescriptions were filled in 2000, individuals were, on average, dispensed fewer prescriptions annually (8.1 vs 8.7 in 1997; P for trend < .001), suggesting that most additional prescriptions were for children continuing psychotropic drug therapy for longer periods or for newly treated youngsters.

Abbreviation: NA, not applicable.
*All dollar amounts are adjusted for inflation and are expressed as 1997 equivalents.
†Denominator df: numerator df is 3.
‡For a 30-day supply; not adjusted for dose equivalence.
§P for trend < .001.

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cal agents. In fact, atypical antipsychotics had the most pronounced change in their share of all psychotropic drug prescriptions (113.6%). Although no attempt was made to categorize anticonvulsants according to their primary indication (psychiatric vs neurologic), the possible effect of misclassification is small given that all patients in the database had a psychiatric condition and that non–mood stabilizing anticonvulsants (such as phenytoin) were excluded from analysis.

In addition to TCAs and traditional antipsychotics, several drugs had their category share eroded by newer and generally more expensive agents. The clearest case is that of stimulants, where methylphenidate hydrochloride decreased its category share by 23.4%. The stimulant class balance was largely affected by the introduction in 1996 of amphetamine compound (Adderall; Shire Richmond US Inc, Florence, Ky), whose share grew to 27.3%, offsetting the declines in the use of dextroamphetamine sulfate (–1.1%) and pemoline (–2.8%). In a similar manner, the 7.7% decrease in fluoxetine’s share of the antidepressants was offset by increases in the use of newer SSRIs (including citalopram, introduced in 2000) and atypical antidepressants. The price of fluoxetine did not change substantially (5.3%), reflective of the fact that generic fluoxetine, introduced after the patent exclusivity of Prozac (Eli Lilly & Co, Indianapolis, Ind) expired on December 31, 2000, was not yet captured in the interval covered by this data set. Older mood stabilizers, such as lithium carbonate, carbamazepine, and valproate, in turn, had their class shares eroded by newer-generation anticonvulsants, which experienced the most turbulent prescription shifts of any agents. For example, the number of topiramate, gabapentin, and lamotrigine prescriptions increased by 13.6-, 6.4- and 3.3-fold, respectively.

With few exceptions, most of the newly introduced agents were more expensive—at times significantly so—than those they were supplanting. For example, atypical antipsychotic drug costs per prescription were on average 3.8 times higher than those of their conventional counterparts; SSRIs and atypical antidepressants was offset by increases in the use of newer SSRIs (including citalopram, introduced in 2000) and atypical antidepressants. The price of fluoxetine did not change substantially (5.3%), reflective of the fact that generic fluoxetine, introduced after the patent exclusivity of Prozac (Eli Lilly & Co, Indianapolis, Ind) expired on December 31, 2000, was not yet captured in the interval covered by this data set. Older mood stabilizers, such as lithium carbonate, carbamazepine, and valproate, in turn, had their class shares eroded by newer-generation anticonvulsants, which experienced the most turbulent prescription shifts of any agents. For example, the number of topiramate, gabapentin, and lamotrigine prescriptions increased by 13.6-, 6.4- and 3.3-fold, respectively.

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sants were 4.1 and 3.4 times, respectively, more expensive than TCAs, and the price ratio between lamotrigine and lithium reached a high of 7.9.

**PSYCHOTROPIC MEDICATION SALES DIFFERENTIAL AND UNDERLYING FACTORS**

Figure 1 presents the gross differential in psychotropic drug sales between 1997 and 2000 as proportionally attributed to various psychotropic drug classes and individual agents. Antidepressants accounted for the largest fraction of the overall sales change (46.6%), with most of the share driven by SSRIs (30.6%). Antipsychotics followed as a category (21.1%), with virtually all change due to atypical agents. Other antidepressants, stimulants, and mood stabilizers accounted for a similar fraction each (approximately 15%). Almost half of the overall sales differential (46.7%) was accounted for by only 3 of the 39 drugs identified (amphetamine compound, risperidone, and sertraline hydrochloride), and 75% by 7 drugs (the previous 3, together with bupropion hydrochloride, paroxetine, venlafaxine hydrochloride, and citalopram). Five of the 7 agents are antidepressants, and all of them are available only as brand name preparations given their recent introduction to the marketplace.

The seemingly low share of the overall sales differential accounted for by stimulants (14.5%) can be understood on the basis of the cost shift seen within the cat-
The single largest increase of cost differential (25.3%) was that of amphetamine compound (Adderall), but it was largely offset by the two single largest decreases seen for the generic stimulants methylphenidate (−8.6%) and pemoline (−2.9%). Although these opposing trends provide another line of evidence for the shift effect seen within this drug category, it is not exclusive to stimulants. Indeed, the shift toward newer and generally more expensive medications can be conceptualized as one of the two drivers to prescription-related cost shifts over time. The other factor is “pure” price inflation, reflective of higher costs for the same medications due to cost increases at the manufacturer, wholesale, retail, pharmacy, or all levels combined.

**Figure 2** depicts the various factors accounting for the increase in psychotropic drug expenditures. The largest component, responsible for 78.3% of the increment seen, is the volume of prescriptions filled, a change that can be attributed to a larger enrollment base (52.9%), to more medicated enrollees (17.5%), and to enrollees continuing medication use for longer periods (8.7%). In addition, prescription price changes, through shifts to newer medications and pure inflation, accounted for similar parts of the remaining portion: 11.3% and 9.6%, respectively.

**COMMENT**

In this study, data from a national group of privately insured children and adolescents were used to examine changes in psychotropic drug expenditures. We found that relatively few drugs accounted for a large portion of the change in psychotropic medication expenditures over time and that a combination of more drugs being prescribed, a preference for newer and costlier drugs, and the net effect of inflation had a compounded effect on price trends.

Gross psychotropic drug expenditures for this sample showed a $2.7 million (65.2%) increase between 1997 and 2000. Most of that change (78.3%) was due to the large increase in the volume of prescriptions filled (46.7%). This finding is in keeping with the observation that, particularly after 1994, growth in utilization, rather than price, has been the primary driver of increased pharmaceutical spending.19 In addition, a shift toward newer and generally more

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**Figure 1.** Psychotropic medication overall sales differential, 1997-2000. Totals by class and by agent sum to 100% ($2.7 million) each. SSRI indicates selective serotonin reuptake inhibitor; APs, antipsychotics; ADs, antidepressants; and TCAs, tricyclic antidepressants.

**Figure 2.** Prescription-related factors contributing to increased psychotropic drug expenditures, 1997-2000. The values are the percentages of the $2.7 million difference in gross sales (equivalent to a 65.2% increase in gross sales between 1997 and 2000).
expensive, brand name–only) agents and a pure inflationary effect explained almost one quarter of the price change. Expressed at the prescription level, at a time when the average price increased by 17.6% (or $7.90 per prescription), it is estimated that 55.1% ($4.35) was attributable to the shift effect and 44.9% ($3.55) to pure inflation.

The fact that the large number of new prescriptions did not lead to a parallel increase in the number of prescriptions per treated youth (a number that in fact decreased slightly), combined with the constant rates of multiple psychotropic pharmacotherapy seen (approximately 7.5 per 100 outpatients, data not shown), indicate that most of the additional prescriptions in 2000 were written for newly treated children. Stated alternatively, more individual youths were initially given or continued taking for longer periods of time psychotropic medications rather than a growing number being medicated with multiple agents.

A few psychotropic agents accounted for a disproportionate fraction of the observed cost shifts. Almost half of the overall sales differential (46.7%) was accounted for by only 3 individual drugs, and 25.3% was accounted for by amphetamine compound (Adderall) alone. Although the price ratio between amphetamine compound and methylphenidate was low (1.1), a series of new, nongeneric stimulant preparations had only recently been introduced to the marketplace. Thus, these may be conservative estimates of price differentials given that newer and more expensive agents that have gained stimulant market share since then (eg, Concerta [Alza Corp, Mountain View, Calif] had not yet been introduced to market in 2000.

Several factors may help explain the observed trends:

1. Improved newer products and an expanding evidence base. The virtual shifts from traditional to atypical antipsychotics, or from TCAs to SSRIs, are supported by a growing body of clinical trials specifically tailored to the pediatric population. As pertinent examples, randomized controlled trials have documented the short-term efficacy in children and adolescents of the SSRIs paroxetine in major depression, sertraline in obsessive-compulsive disorder, and fluvoxamine in generalized anxiety disorder, and of the atypical antipsychotic risperidone in the treatment of disruptive behaviors in children with subaverage intelligence or autism.

2. Preference. Clinicians may have lower thresholds to prescribe medication for conditions amenable to pharmacologic treatment, especially when using newer agents with more favorable safety and adverse effect profiles that may not require as intense monitoring by specialists (eg, serum levels with lithium or electrocardiographic monitoring with TCAs). Despite the steadily growing range of effective pharmacologic treatments for psychiatrically ill youths, a cautionary note is warranted, as clinicians may use more psychotropic agents in the context of fewer inpatient and outpatient resources to rely on; for example, the increase in the use of mood stabilizers to target bipolar and other externalizing disorders has limited underlying supportive evidence, particularly for newer-generation anticonvulsants. Moreover, there is a paucity of information regarding long-term effects on the developing brain of early and prolonged exposure to psychotropic drugs.

3. Marketing pressures. Few truly new (ie, mechanistically distinct) agents have been introduced to the marketplace during the past decade. Instead, variations of successful compounds are crowding an existing repertoire, a pattern that was most apparent for stimulants and SSRIs. Pharmaceutical industry marketing-sales and marketing-research ratios have to be successively higher for newer agents to overcome the advantages of early movers in the marketplace; direct-to-consumer and direct-to-prescriber advertising practices have been an increasingly common mechanism for the pharmaceutical industry to gain market share for their products. The effects of these advertising practices on clinical practice are still poorly understood but are likely to be substantial, as suggested by the large shifts within category share occurring during the relatively short interval of this study.

The public largely experiences (and pays for) the escalating costs of their pharmaceuticals indirectly—through more expensive insurance premiums. Indeed, the generous pharmacy benefits typically associated with private insurance plans lead to increasing costs as consumers become “price insensitive” and request and feel entitled to the latest (and more expensive) drugs. Conversely, the uninsured often pay the highest price for drugs, as they are not covered by copayments and they lack the bargaining clout that large insurers and pharmacies have to obtain medications at a discount. As a result, those who are insured take more medications and fill prescriptions more often, and the uninsured often go without necessary treatment. As a case in point, for the approximately 1 in 6 children in the United States without health insurance, use of psychotropic agents remained far below that for those covered under public or private plans in 1996 (1.5%, 5.3%, and 4.1%, respectively).

Such economic disparities, and the overall trends described herein, need to be considered in the context of potential cost savings, as it is plausible that effective pharmacotherapy may be related to reduced expenditures in other areas, such as hospitalization or outpatient costs. Similar to our earlier study, this descriptive study cannot provide the formal cost-benefit analyses that the field of pediatric psychopharmacology is in need of.

This study has several shortcomings, including limited generalizability. The psychotropic utilization rates reported herein (28.7 per 1000 in 1997) are significantly lower than recently published prevalence estimates derived from 1996 nationally representative samples (39 per 1000) or population-based analyses of regional community practices (59-63 per 1000). Although the exclusively privately insured nature of our study population can explain part of the difference in prevalence, the estimates presented herein are also lower than those of comparable employer-insured samples; for example, our 2000 prevalence for stimulant use (21.8 per 1000) is well below the 1999 rate of 26.5 per 1000 reported in a recent study. (SSRI prevalence rates were more similar across the two studies: 11.1 and 10.3 per 1000, respectively.) The prevalence estimates presented herein are intended as a general guide only, as MarketScan data are not obtained in any systematic or randomly stratified manner and are thus not intended to be epidemiologically representative. A second important limitation is the lack of information regarding quality of care, clinical outcomes, or patient satisfaction variables, which does not

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Psychotropic drug use prevalence among children and adolescents has steadily increased during the past decade, with most medications prescribed by pediatricians and family practitioners.

Previous studies have shown increasing psychotropic drug expenditures at the aggregate level but have not provided information on the drug classes or specific agents responsible for such cost trends.

Half of the gross sales differential seen in this study was accounted for by only 3 drugs (amphetamine compound, risperidone, and sertraline), and 73% was accounted for by 7 drugs (the previous 3, together with bupropion, paroxetine, venlafaxine, and citalopram).

Children receiving psychotropics more often and for longer periods, a shift toward newer (and costlier) agents within a same therapeutic class, and the net effects of inflation all had an impact on increased pharmaceutical spending.

allow for a full cost-benefit analysis of these findings. Third, the fact that prescription prices were not adjusted for dosage equivalence may have resulted in biased cost estimates, especially relevant to the calculation of market share within given drug categories. Although real, the impact of such a factor is likely to be small and nondifferentially distributed across drugs.

In conclusion, despite its limitations, this study documents how a relatively few drugs accounted for a large portion of the change in psychotropic drug expenditures seen during this interval and how a combination of more youths being prescribed drugs, a preference for newer and costlier medications, and the net effect of inflation had a compounded effect on price trends. These results expand on earlier evidence of a shift toward medication-based mental health treatment modalities in children and adolescents. Future studies should further address the impact of managed care and pharmaceutical marketing effects on these trends of clinical care.

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This work on the costs of child psychiatry is dedicated to our teacher and mentor, the late Donald J. Cohen, MD (1940-2001), who taught us so much about the values at the very core of our field.

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