Quality of Care for Medicaid-Covered Youth Treated With Antidepressant Therapy

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Background: Although antidepressant use has increased in pediatric populations, few studies have addressed the quality of follow-up care or duration of treatment for depressed youth.

Objective: To evaluate the quality of care for antidepressant-treated youth, using the Health Plan Employer Data and Information Set guidelines (≥3 visits in the 3 months after a new antidepressant prescription fill and continuation of antidepressant use at 3 and 6 months) as a benchmark.

Design: Administrative records were examined for 1205 Medicaid-covered youth (aged 5-18 years) who presented with a “new episode” of depression in 1998. Statistics were generated to describe the number of follow-up visits and duration of treatment within 6 months of first prescription fill.

Results: A total of 507 (42.1%) youth with new episodes of depression were treated with antidepressants. Selective serotonin reuptake inhibitors accounted for 80.9% of prescriptions. Twenty-eight percent (28.1%) of youth with an antidepressant fill had 3 or more follow-up visits in the subsequent 3 months; however, an additional 29.2% had no further provider visits. Selective serotonin reuptake inhibitors were continued by 46.6% of treated youth at 3 months and by 26.3% at 6 months.

Conclusions: Many antidepressant-treated youth do not receive adequate follow-up or duration of treatment. Future studies should address reasons for poor follow-up and methods to improve monitoring for these youth.

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By age 18 years, it is estimated that 20% of youth will have experienced at least 1 episode of major depression. Depressed youth are at increased risk for suicide, school failure, substance abuse, nicotine dependence, obesity, early pregnancy, and social isolation. The results of recent studies suggest that selective serotonin reuptake inhibitor antidepressants (SSRIs) may be effective in reducing symptoms of depression in adolescents and children. However, information is limited on the efficacy and safety of antidepressant drugs in this age group.

Despite the paucity of studies that have been conducted among children and adolescents, there has been a 3- to 8-fold increase in the use of antidepressants in children and adolescents during the last decade. Although data are limited regarding the source of this increased use, primary care providers are more likely than mental health specialists to prescribe an antidepressant for their pediatric patients with depression. In addition, in investigations using administrative data, most antidepressant-treated youth have no evidence of mental health specialist contact. Therefore, indirect evidence suggests that many prescriptions are being provided by non–mental health specialists, who may lack in-depth training in the use of these medications.

Because antidepressants may be prescribed by providers with minimal training in their use or in the treatment of depression, it is important to evaluate the quality of care that antidepressant-treated youth receive. Most of the quality-of-care indicators, such as the RAND guidelines for adolescent depression, are based on the 1993 recommendations of the Depression Guideline Panel organized by the Agency for Health Care Policy and Research. These guidelines recommend weekly to biweekly follow-up in the first 6 to 8 weeks after starting pharmacotherapy for depression.

The Health Plan Employer Data and Information Set (HEDIS) quality-of-care...
guidelines for depression are also based on the Depression Guideline Panel recommendations, but were developed for use with administrative data.13 Given some of the limitations of administrative data, the HEDIS guidelines are less stringent than the Agency for Health Care Policy and Research depression treatment guidelines. The HEDIS guidelines recommend at least monthly follow-up appointments in the 3 months following antidepressant prescription fill, and at least 3 months of continuous treatment for acute phase medication treatment and 6 months for the continuation phase. The main objective of this study was to examine if youth who were treated with antidepressants are receiving treatment in a manner that would meet these minimal quality-of-care standards. As a secondary aim, we evaluated the association between the receipt of treatment meeting quality-of-care standards and characteristics of the first treatment episode and patient demographics.

### METHODS

#### SETTING

This study was conducted using Washington State Medicaid claims data collected from July 1, 1997, through December 31, 1998. During these years, the Washington State Medicaid program covered youth up to age 19 years in families with incomes up to 200% of the federal poverty level. Most youth were enrolled in a Medicaid managed care plan unless they had complex chronic medical conditions or were placed in foster care, in which case they were covered by a fee-for-service plan. About 7% of enrolled youth were covered by the fee-for-service plan. Services covered by Medicaid included outpatient and inpatient health care and mental health care, as well as prescription medications. There were no formulary restrictions or co-pays for antidepressant medications during this period. Outpatient mental health services were provided by community mental health centers or mental health providers within managed care plans, depending on the preference of enrolled families. Although no visit limit existed for community mental health centers, visits with mental health specialists in the managed care system were limited to 12 per year. Administrative data captured in claims format were available for managed care and fee-for-service plan enrollees.

#### SUBJECTS

Children and adolescents (aged 5-18 years) were eligible to be included in this study if they were continuously enrolled in Medicaid from July 1, 1997, to December 31, 1998, and had presented with a “new episode” of depression.

#### NEW EPISODE OF DEPRESSION

Consistent with methods used by others,14 youth were classified as having a new episode of depression if they had a visit coded with an International Classification of Diseases, Ninth Revision (ICD-9) code for a depressive disorder after a 6-month window with no depressive disorder diagnosis and no antidepressant medication fill. Depressive disorder diagnosis codes were selected based on codes outlined in the HEDIS guidelines (ICD-9 codes 296.2, 296.3, 298.0, 300.4, 309.1, and 311).13 There were 9 ICD-9 code fields available for each claim, although few records had more than 2 or 3 coded diagnoses. A youth was considered to have depression if a code was present in any ICD-9 code field. Youth with a bipolar disorder diagnosis at any time during the study (n=1336) were excluded from analysis, as their needs and treatment were anticipated to differ from those of youth with depression alone.

#### ANTIDEPRESSANT USE

Antidepressant use was defined as having at least 1 pharmacy claim for an SSRI, tricyclic, or other antidepressant (eg, bupropion hydrochloride and trazodone hydrochloride) in the 6 months following presentation with a new episode of depression. Antidepressants were identified using national drug codes for antidepressant medications. A list of antidepressants and the dosing guidelines used to calculate minimum doses are provided in Table 1.

#### FOLLOW-UP CARE AND ANTIDEPRESSANT DURATION

Follow-up care was assessed by the number of claims for a health provider contact in the 3 months following SSRI medication fill. Codes accepted included evaluation and management visits and mental health specialty visits. As physicians have been noted not to code for depression in health care visits,15 we accepted any evidence of provider contact as a potential follow-up for antidepressant use. In a subanalysis, we required that 1 of the 9 ICD-9 codes for the follow-up visit include a depression diagnostic code.

Mental health specialty visits were also assessed in the 6 months following presentation with a new episode of depression. The billing provider specialty was not available for all records. In defining mental health visits, we decided to take a conservative approach and be overinclusive rather than underinclusive of potential mental health specialty visits. Youth were defined as having a mental health specialty visit if they had (1) an evaluation and management visit coded by a psychiatrist or psychologist, (2) a visit coded with a Current Procedural Terminology code for psychotherapy or psychiatric assessment (includes care provided by master’s-level therapists, psychiatric nurse practitioners, psychologists, and psychiatrists), or (3) a state-specific code for a mental health visit.

### Table 1. Guideline-Level Antidepressant Doses

<table>
<thead>
<tr>
<th>Type of Antidepressant</th>
<th>Minimum Recommended Dosage, mg/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective serotonin reuptake inhibitors</td>
<td></td>
</tr>
<tr>
<td>Fluoxetine hydrochloride</td>
<td>10</td>
</tr>
<tr>
<td>Fluvoxamine maleate</td>
<td>100</td>
</tr>
<tr>
<td>Paroxetine hydrochloride</td>
<td>20</td>
</tr>
<tr>
<td>Sertraline hydrochloride</td>
<td>50</td>
</tr>
<tr>
<td>Citalopram hydrochloride</td>
<td>20</td>
</tr>
<tr>
<td>Tricyclic antidepressants</td>
<td></td>
</tr>
<tr>
<td>Desipramine hydrochloride</td>
<td>75</td>
</tr>
<tr>
<td>Nortriptyline hydrochloride</td>
<td>40</td>
</tr>
<tr>
<td>Protriptyline hydrochloride</td>
<td>20</td>
</tr>
<tr>
<td>Amitriptyline hydrochloride</td>
<td>75</td>
</tr>
<tr>
<td>Clomipramine hydrochloride</td>
<td>75</td>
</tr>
<tr>
<td>Doxepin hydrochloride</td>
<td>75</td>
</tr>
<tr>
<td>Imipramine hydrochloride</td>
<td>75</td>
</tr>
<tr>
<td>Trimipramine maleate</td>
<td>75</td>
</tr>
<tr>
<td>Other antidepressants</td>
<td></td>
</tr>
<tr>
<td>Bupropion hydrochloride</td>
<td>200</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>15</td>
</tr>
<tr>
<td>Nefazodone hydrochloride</td>
<td>200</td>
</tr>
<tr>
<td>Trazodone hydrochloride</td>
<td>150</td>
</tr>
<tr>
<td>Venlafaxine hydrochloride</td>
<td>75</td>
</tr>
</tbody>
</table>
in the capitated mental health system. We assumed that non-mental health providers would not use mental health–specific billing codes.

The number of days that antidepressant use was prescribed was calculated by multiplying the number of pills on each prescription by the pill dose and then dividing by the minimal acceptable daily dose for each medication, as defined by the Depression Guideline Panel12 and newer guidelines for antidepressants released after the depression guidelines were published.16 The full number of days was counted for each prescription, even if a refill occurred in the middle of a prior prescription, or if a new medication was prescribed before the completion of a previous prescription’s supply. This is consistent with the way others have calculated medication days.17 Medication days were added within classes of medications (eg, SSRI, tricyclic, or other antidepressant) to prevent double-counting days that might be due to dual treatment (eg, treatment with an SSRI and trazodone).

COVARIATES

Covariates included sex, subject age, race/ethnicity, and rural or urban residence, as each of these covariates has been shown to be associated with the likelihood of receiving treatment for depression.16,17

Rural and urban residence status was determined using the rural and urban commuting area coding system developed for the Washington State area in conjunction with the Federal Office of Rural Health Policy and the Department of Agriculture’s Economic Research Service.20

Differences between managed care and fee-for-service coverage were not examined because of complexities related to an individual’s ability to change coverage status during the 18-month study and the possibility of a managed care beneficiary receiving certain services in the fee-for-service sector.

STATISTICAL ANALYSIS

Data preparation was performed using SAS for Windows,21 and all analyses were performed using STATA 7 statistical software.22 Descriptive analyses were performed to assess the characteristics of youth with new episodes of depression who were treated with antidepressants, compared with those who were not treated with antidepressants. χ² Statistics and t tests were used to examine for significant differences among youth who were treated with antidepressants and those who were not treated with antidepressants.

To examine the degree to which youth were receiving care that met HEDIS criteria standards, summary statistics were generated to describe the number of follow-up visits each youth had received in the 3 months following filling their first antidepressant prescription, as well as the number of youth who received at least 3 months or 6 months of antidepressants at a guideline-level dose. Subsequently, logistic regression methods were used to evaluate demographic and diagnosing-provider characteristics that were most associated with receiving care that met the HEDIS standards. Finally, to assess the association between the number of follow-up visits and duration of antidepressant treatment, logistic regression methods were used to assess the odds of receiving at least 3 months of treatment based on the number of follow-up visits received.

RESULTS

Of 1205 youth who met criteria for having a new diagnosis of depression, 42.1% (n = 507) were treated with antidepressants. Compared with youth who met criteria for having a new episode of depression but were not treated with antidepressants, youth who were treated with antidepressants were more likely to be older (P<.001), female (P=.02), and white (P<.001) (Table 2).

Among youth who received antidepressants, 80.9% received at least 1 prescription for an SSRI, 22.7% received at least 1 prescription for another antidepressant, and 1.6% received at least 1 prescription for a tricyclic antidepressant. Fourteen percent (14.2%) of youth who were treated with antidepressants received antidepressant medications from more than 1 class. Selective serotonin reuptake inhibitor and other antidepressant use increased with age, while there was no significant age variation for tricyclic antidepressant use (Figure 1).

FOLLOW-UP VISITS

Fifty-two antidepressant-treated youth were hospitalized for any cause during the 3 months following antidepressant prescription fill. These youth were excluded from the follow-up visit analysis, leaving 455 antidepressant-treated youth in the final sample. Twenty-nine per-
cent (29.2%) of antidepressant-treated youth had no evidence of further provider contact in the 3 months following first antidepressant prescription fill, 28.1% had 1 contact, 14.5% had 2 contacts, and only 28.1% had the number of visits recommended by HEDIS guidelines (Figure 2). Depression was infrequently coded on these follow-up appointment records. When limiting the analysis to visits with a code for depression, only 3.5% of youth had at least 3 visits in 3 months. Twenty-nine percent (29.2%) of youth who received antidepressants had 1 or more mental health specialty visits during the 3-month follow-up, compared with 40.7% of youth who did not receive an antidepressant (P < .001).

DURATION OF ANTIDEPRESSANT USE

Early discontinuation of antidepressants was common in our sample (Figure 3). Focusing on SSRI antidepressants, 46.6% (191/410) of youth who had filled a new antidepressant prescription received at least 3 months of treatment, and only 26.3% (n=108) received at least 6 months of treatment as recommended by the HEDIS criteria. Many youth did not receive a sufficient supply to have an adequate trial for effectiveness of the medication: 28.3% (n=116) of youth received less than 6 weeks of antidepressant therapy. Younger children were less likely than older children to receive an adequate duration of SSRI antidepressants (Figure 4). This result should be viewed with caution, as administered doses affect duration calculations and dosing guidelines are not well established for younger children.

There was a significant association between the number of follow-up visits received and duration of antidepressant treatment. Compared with those youth who had no follow-up visits, youth with at least 3 documented follow-up encounters were significantly more likely to receive at least 3 months of SSRI treatment (odds ratio, 2.02; 95% confidence interval, 1.27-3.22).

FACTORS ASSOCIATED WITH RECEIVING AT LEAST 3 FOLLOW-UP VISITS OR 3 MONTHS OF TREATMENT

Only 1 factor was significantly associated with increased odds for having at least 3 follow-up provider contacts in the 3 months after filling a new prescription for an antidepressant: having a mental health–related billing code (psychiatric Current Procedural Technology code or state-specific mental health code) on the index diagnostic visit (odds ratio, 1.90; 95% confidence interval, 1.21-3.26). Living in a rural region was significantly associated with increased likelihood of receiving at least 3 months of an antidepressant medication at a guideline-level dose (odds ratio, 1.89; 95% confidence interval, 1.12-3.00).

COMMENT

This is one of the first studies to examine duration of antidepressant use and follow-up care among youth who have been treated with antidepressants for a new episode of depression. Many youth in our sample received antidepressants, but few received care that would meet the minimal standards of quality care as outlined by the HEDIS criteria.

Among adult primary care patients, 25% to 30% of patients discontinue antidepressants within 1 month of starting treatment, and 40% to 50% discontinue within 3 months of treatment. Twenty-five percent of adult patients initiating antidepressant treatment receive follow-up care that meets the HEDIS standard. Although our results are similar to those of adult studies, they are of concern in pediatric populations, for whom data on
the effectiveness and safety of antidepressants are limited. The finding that more than one half of the youth discontinued antidepressants before receiving at least 3 months of treatment suggests that we may need to develop health services interventions that assess and endeavor to improve the effectiveness of these medication treatments in children.

Of particular concern is the finding that almost one third of the youth who received and filled a prescription for an antidepressant had no evidence of any follow-up visits in the subsequent 3 months. In adults, increased frequency of follow-up following a new antidepressant prescription is associated with longer treatment duration and improved depression outcomes. In our study, we did not have information on depression outcomes; however, youth who had more follow-up visits were significantly more likely to receive at least 3 months of medications, although some of these visits may have been with a nonprescribing mental health or primary care provider. Youth with a mental health specialty code on the first visit were also more likely to have received adequate follow-up. However, this finding does not necessarily indicate that mental health specialists are providing better follow-up care for medication use. The presence of mental health specialty codes may also indicate a group of youth who are receiving mental health therapy or who have an increased severity of depressive symptoms or other mental health concerns. We did not have information regarding depressive symptom severity or mental health comorbidities to examine this further.

The failure to deliver adequate follow-up or duration of care may result from barriers at the level of the patient, the provider, or the health system. For example, patients might discontinue medications because of inadequate education regarding their use, concerns about the stigma of depression diagnosis and treatment, adverse effects, or insufficient resources to follow-through on recommended care. At the same time, providers might not be aware of guideline-level treatment recommendations or may think that newer antidepressants are so safe that youth do not require close follow-up. Finally, at the health system level, visit time constraints might contribute to inadequate patient education, and the lack of systems to track nonadherence to medication use or follow-up visits may lead to infrequent visits or patient dropout.

In adult studies, barriers to care have been noted to occur on multiple levels, and interventions have been developed that address barriers at the patient, provider, and health system levels. These multimodal interventions improve patient education, increase frequency of follow-up, track outcomes and adherence, and facilitate return appointments to primary care providers in patients with adverse outcomes. These strategies have been successful in improving not only treatment adherence but also depression outcomes.

It is important to note the limitations of this study. First, our data were from a Medicaid program in a single state and, as such, may not be generalizable to other populations. In Washington State, many mental health professionals will not accept Medicaid insurance, and the state behavioral health system can be difficult to access. This may result in a higher rate of antidepressant prescriptions by primary care physicians and a lack of access to the mental health system and psychotherapy options.

A second limitation of these data is that we did not have information regarding the actual dose of antidepressants taken. In counting days of antidepressant use, we chose to use standards for minimally effective doses. This is a common practice in the use of administrative data, but will likely overestimate duration of treatment for youth who are taking higher doses or will underestimate the duration of treatment if youth are receiving less than guideline-level doses, which may be a particular problem for younger children, for whom there are few dosing guidelines.

A third limitation is that we may have misclassified some youth with existing depression as having a new episode. We tried to prevent this by including a sufficiently long exclusion window during which youth were not receiving treatment, but to the extent that youth were misclassified, it may have resulted in underestimates of follow-up rates and treatment duration. Finally, we did not have access to information regarding treatment that was prescribed but never obtained. Therefore, based on these data, we cannot further elucidate at what level barriers to receiving adequate follow-up care or treatment duration are occurring.

Despite these limitations, this article provides a new and important glimpse into the quality of treatment that we provide to depressed youth. As the use of antidepressants increases, we need to examine the way in which we deliver care for these youth and to design strategies that ensure treatments are delivered in a manner that is safe and effective.

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REFERENCES


