Mental Health Care Utilization and Expenditures by Children in Foster Care

Jeffrey S. Harman, PhD; George E. Childs, BA; Kelly J. Kelleher, MD, MPH

Objective: To determine the percentage of children with mental health diagnoses and utilization and expenditures of mental health services among children in foster care compared with other children receiving Medicaid, including those with disabilities.


Population: A total of 39,500 children between ages 5 and 17 years continuously eligible for Medicaid in southwestern Pennsylvania were included in the analysis.

Main Outcome Measures: Percentage of children with mental health diagnoses and mental and general health care utilization and expenditures classified by participation in foster care and Medicaid eligibility.

Results: Children in foster care were 3 to 10 times more likely to receive a mental health diagnosis, had 6.5 times more mental health claims, were 7.5 times more likely to be hospitalized for a mental health condition, and had mental health expenditures that were 11.5 times greater ($2082 vs $181) than children in the Aid to Families With Dependent Children (AFDC) program. Overall, utilization rates, expenditures, and prevalence of psychiatric conditions for children in foster care were comparable with those of children with disabilities.

Conclusions: Children in foster care are significantly more likely to suffer from mental health conditions and use more mental health and general health services than AFDC children. Service use and expenditures are comparable with those of disabled children, suggesting that reimbursement rates and care management for children in foster care need to be reexamined.


The more than half million children in foster care often have significant behavior problems and adaptive functioning deficits, with rates far exceeding those found in the general population. Children in foster care may be at greater risk for mental health problems, as most have experienced some form of abuse or neglect, or suffer from being separated from their families.

Medicaid coverage for children in federal foster care or federal adoptive assistance is mandatory and all states have the option of extending Medicaid coverage to children placed in state foster care, regardless of the parents’ income. Although Medicaid serves as the primary funding mechanism for the provision of mental health services to this population, few studies have examined the use of Medicaid-reimbursed mental health services by children in foster care. Halfon et al found that, although children in foster care represent fewer than 4% of Medicaid-eligible children in California, they accounted for 41% of all mental health claims. Takayama et al found that 25% of children in Washington’s foster care system used Medicaid-reimbursed mental health services, while only 3% of children eligible through Aid to Families With Dependent Children (AFDC) had mental health services use. These studies are now somewhat dated, using Medicaid data from 1988 to 1990. In addition, the study by Halfon et al was based on paid claims, so there was no information on the total number of children eligible for Medicaid through foster care. The study by Takayama et al did not examine utilization of specific types of mental health services, and their sample was limited to children younger than 8 years.

To improve the Medicaid program’s ability to provide the mental health services necessary for this growing and vulnerable population of children, it is first necessary to understand the type and extent of mental health services provided and the expenditures for those services. Past studies have shown relatively high utilization rates of mental health services by children in foster care. For editorial comment see page 1080.
**MATERIALS AND METHODS**

**DATA**

This study used Medicaid claims and eligibility files from southwestern Pennsylvania from fiscal year 1995 to compare use of mental health services and expenditures by children in foster care with other children on Medicaid, including those children who qualify for Supplemental Security Income (SSI) because of disabilities. Children in foster care were identified from eligibility files using recipient program status codes. Recipient program status codes are assigned by the Office of Information Management (OIM) to supplement the category of assistance. These codes are usually used to identify the recipient for enhanced federal funding or to facilitate OIM reporting needs. Children in federal foster care, federal adoptive assistance, state foster care, and state adoptive assistance were included in the foster care group. Children are placed in state foster care or state adoptive assistance if they do not meet the eligibility requirements for federal foster care, such as US citizenship or qualified immigrant status. A state can also put a child in foster care for causes other than those federally required for abuse and neglect, such as custodial absence, need for mental health services (Medicaid coverage of residential treatment requires relinquishment of custody in some states), or voluntary relinquishment. For purposes of comparison, children who were not in foster care were separated into 2 mutually exclusive groups: those eligible through AFDC, with or without cash assistance, and those eligible for Medicaid through SSI because of a disability. The SSI program, which went into effect in 1974, provides cash assistance to individuals with a qualifying disability who also meet eligibility requirements concerning citizenship, income, financial resources, and age. Children qualify for SSI if there is a medically determinable physical or mental impairment that results in marked and severe functional limitations. For instance, attention-deficit/hyperactivity disorder (ADHD) is a qualifying condition for SSI. For children in foster care, 3.9% were eligible through SSI and 94.1% were eligible through AFDC. This was quite different from the distribution of children who were not in foster care, 10.3% of whom were eligible through SSI and 90.7% through AFDC.

The sample used in the analysis included all children who were continuously eligible for Medicaid during fiscal year 1995 in 7 counties in southwestern Pennsylvania (including Pittsburgh) who were between the ages of 5 and 17 years. Children younger than 5 years were excluded, as we believed that there would be limited use of mental health services by these children, and those aged 18 years were excluded, as they were less likely to maintain their Medicaid eligibility and aged out of foster care. A total of 39,500 children were included in the analysis: 3696 were in foster care, 3807 were disabled and not in foster care, and 31,997 were neither in foster care nor disabled.

We analyzed Medicaid claims from southwestern Pennsylvania. As these children are enrolled in mandatory managed care plans for mental health services, claims history may help identify costs of mental health services for public funding, the extent of “penetration” of mental health services in this high-risk group, and case-rate or payment considerations.

Mental health services were identified as claims having a primary or secondary International Classification of Diseases, Ninth Revision, Clinical Modification mental health diagnosis code. Measures of the probability of any mental health claim during the year, the total number of mental health claims, and the probability of an inpatient mental health claim were analyzed. Expenditures for mental health and nonmental health services were compared. In addition, expenditures for psychiatric drugs and nonpsychiatric drugs were examined using Medicaid pharmacy claims. Psychiatric drugs were identified by matching National Drug Codes from the Food and Drug Administration’s National Drug Codes Classification to the corresponding Medicaid pharmacy claims data. We also examined total Medicaid expenditures, which consisted of all expenditures for psychiatric and nonpsychiatric services and drugs.

Finally, we examined the percentage of children diagnosed as having unipolar or bipolar depression, anxiety disorder, ADHD, conduct disorder, and oppositional defiant disorder, as these are the most common child psychiatric disorders. Children were considered to have one of these disorders if they had at least 1 claim during the year with the corresponding primary or secondary diagnosis code. The categories were not mutually exclusive.

**ANALYSIS**

Comparisons were made for both unadjusted and adjusted means between children in foster care and those eligible for Medicaid through AFDC, as well as between children in foster care and those eligible for Medicaid because of a disability (SSI). Differences in unadjusted means were determined using 2-sample t tests for continuous measures and χ² tests for dichotomous measures.

Adjusted means controlled for differences in age, sex, race, and county of residence. For dichotomous variables (eg, probability of mental health hospitalization), adjusted means were obtained from a logistic regression model. For the number of mental health claims, a negative binomial regression model was employed. Differences in adjusted expenditures were obtained using ordinary least squares regressions with log transformations of the expenditure variables (for total and nonpsychiatric services expenditures), or with 2-part models with log transformations when many observations had values at 0. For both models, adjusted means were obtained using predicted values that were retransformed. For the logistic and ordinary least squares regressions, significant differences were determined by examining the coefficients for AFDC and SSI indicator variables from the models. For the 2-part models, significant differences were determined by bootstrapping the estimates. Bootstrapping is a technique used as a way of estimating measures of statistical accuracy when available formulas make assumptions that are not tenable.

**RESULTS**

**CHILDREN IN FOSTER CARE VS AFDC CHILDREN**

Children in foster care were 3 to 10 times more likely to have a mental health problem compared with children on AFDC.
Services and Expenditures

Table 2. Differences in Mean Use of Medicaid-Reimbursed Services and Expenditures†

<table>
<thead>
<tr>
<th></th>
<th>Foster Care</th>
<th>AFDC</th>
<th>SSI</th>
<th>Foster Care</th>
<th>AFDC</th>
<th>SSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of mental health claim, %</td>
<td>34.6</td>
<td>8.7‡</td>
<td>36.5</td>
<td>35.6</td>
<td>8.7‡</td>
<td>33.8</td>
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<tr>
<td>Mental health claims, No.</td>
<td>8.5</td>
<td>1.3‡</td>
<td>12.8‡</td>
<td>8.4</td>
<td>1.3‡</td>
<td>11.5‡</td>
</tr>
<tr>
<td>Probability of inpatient claim, %</td>
<td>6.1</td>
<td>0.8‡</td>
<td>4.9§</td>
<td>5.4</td>
<td>0.9‡</td>
<td>4.2§</td>
</tr>
<tr>
<td>Expenditures, $</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatric</td>
<td>2082</td>
<td>181‡</td>
<td>2117</td>
<td>1961</td>
<td>191‡</td>
<td>1879</td>
</tr>
<tr>
<td>Psychiatric drug</td>
<td>92</td>
<td>13‡</td>
<td>129‡</td>
<td>110</td>
<td>14‡</td>
<td>120</td>
</tr>
<tr>
<td>Nonpsychiatric</td>
<td>1390</td>
<td>562‡</td>
<td>254‡</td>
<td>1360</td>
<td>567‡</td>
<td>260‡</td>
</tr>
<tr>
<td>Nonpsychiatric drug</td>
<td>138</td>
<td>100‡</td>
<td>526‡</td>
<td>145</td>
<td>101‡</td>
<td>517‡</td>
</tr>
<tr>
<td>Total</td>
<td>3702</td>
<td>856‡</td>
<td>532†</td>
<td>3576</td>
<td>873‡</td>
<td>511‡</td>
</tr>
</tbody>
</table>

* AFDC indicates Aid to Families With Dependent Children; SSI, Supplemental Security Income.
† Means adjusted for age, sex, race, county of residence (urban vs rural).
‡ Difference from children in foster care was significant at P<.001.
§ Difference from children in foster care was significant at P<.05.

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Table 1. Differences in Psychiatric Diagnosis‡

<table>
<thead>
<tr>
<th>Diagnostic Probabilities</th>
<th>Foster Care</th>
<th>AFDC</th>
<th>SSI</th>
<th>Foster Care</th>
<th>AFDC</th>
<th>SSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>5.9</td>
<td>1.1‡</td>
<td>5.1</td>
<td>5.0</td>
<td>1.1‡</td>
<td>4.2</td>
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<td>Anxiety disorder</td>
<td>2.5</td>
<td>0.8‡</td>
<td>2.0</td>
<td>2.5</td>
<td>0.8‡</td>
<td>1.8§</td>
</tr>
<tr>
<td>ADHD</td>
<td>14.7</td>
<td>3.9‡</td>
<td>19.6§</td>
<td>17.7</td>
<td>3.9‡</td>
<td>18.6</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>4.5</td>
<td>0.6‡</td>
<td>3.4§</td>
<td>3.7</td>
<td>0.6‡</td>
<td>2.7§</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>1.0</td>
<td>0.1‡</td>
<td>1.4</td>
<td>0.8</td>
<td>0.1‡</td>
<td>1.1</td>
</tr>
<tr>
<td>Oppositional defiance</td>
<td>9.4</td>
<td>1.9‡</td>
<td>9.1</td>
<td>9.8</td>
<td>1.9‡</td>
<td>8.2§</td>
</tr>
</tbody>
</table>

* AFDC indicates Aid to Families With Dependent Children; SSI, Supplemental Security Income.
† Means adjusted for age, sex, race, county of residence (urban vs rural).
‡ Difference from children in foster care was significant at P<.001.
§ Difference from children in foster care was significant at P<.05.

COMMENT

As with previous studies that examined the use of mental health services by children in foster care, 6,7 enormous differences in service use and expenditures were evident between children in foster care and other nondisabled children on Medicaid. Children in foster care were much more likely to suffer from mental health conditions, which led to much higher expenditures for mental health services and psychiatric drugs. However, they also had higher expenditures for nonpsychiatric conditions. Clearly, children in foster care have special health care needs. Although we did not find the 15-fold and 8-fold differences in the probability of using mental health services found in previous studies, 6,7 the prior studies included only active service users, not all children eligible for Medicaid. We still found a 4-fold difference in the probability of using mental health services for children in foster care. Furthermore, unlike these previous analyses, we compared their use of services with those of another special-needs population—children who were eligible for Medicaid through SSI. The cost and utilization of mental health services by children in foster care were quite significant differences in expenditures for nonpsychiatric services and drugs were also evident (Table 2). Children in foster care had, on average, $1390 in Medicaid expenditures for nonpsychiatric services while children eligible for Medicaid through AFDC averaged $562. For nonpsychiatric drugs, children in foster care had, on average, $138 in Medicaid expenditures for nonpsychiatric drugs, while children eligible for Medicaid through AFDC had $100 in expenditures. Expenditures for all health services and drugs were more than 4 times higher for children in foster care ($3703 vs $857).

CHILDREN IN FOSTER CARE VS CHILDREN WITH DISABILITIES

Rates of diagnosis for mental health problems by children in foster care were comparable with those of children eligible for Medicaid through SSI (Table 1). In fact, when rates were adjusted for demographic factors, children in foster care were significantly more likely to be diagnosed as having anxiety disorder (2.5% vs 1.8%), conduct disorder (3.7% vs 2.7%), and oppositional defiant disorder (9.8% vs 8.2%) than children eligible for Medicaid through SSI. When unadjusted rates of diagnosis are compared, children eligible for Medicaid through SSI were more likely to be diagnosed as having ADHD (19.8% vs 14.7%), reflecting the fact that ADHD is a qualifying condition for SSI, while children in foster care were more likely to have conduct disorder (4.5% vs 3.4%).

There were no significant differences in the probability of having a mental health claim or in adjusted expenditures for psychiatric services or drugs between children in foster care and children with disabilities (Table 2), although children with disabilities had more mental health claims on average during the year (12.8 vs 8.5). On the other hand, children in foster care were significantly more likely to have a psychiatric hospitalization (6.1% vs 4.9%). Children with disabilities had higher expenditures for nonpsychiatric services and drugs ($2549 vs $1390 and $526 vs $138, respectively). These resulted in higher total Medicaid expenditures for children with disabilities ($5322 vs $3703).
similar to those of children with disabilities. The distributions of total Medicaid expenditures by type of service for children in foster care, children eligible for AFDC, and children eligible for SSI are presented in the Figure.

At a time when many Medicaid programs are switching to managed care, it is important that the mental health service needs of the foster care population be taken into consideration. If capitation rates and health care service planning do not account for the special needs of children in foster care, they will be placed at considerable risk of receiving fragmented care or care that does not meet their considerable needs. Moreover, plans that adequately care for such youth may be vulnerable because behavioral carve-out capitation rates are not high enough to cover the cost of needed services. Currently, there is no capitation rate differential for children in foster care in southwestern Pennsylvania. Even though the treatment rate for mental health problems among children in foster care is comparable with the rate for children in SSI, these children are much less likely to have SSI eligibility than other Medicaid-eligible children (5.9% vs 10.3%). SSI eligibility would provide increased capitation eligibility than other Medicaid-eligible children (5.9% vs 10.3%). SSI eligibility would provide increased capitation rates that might avoid adverse selection among plans (ie, “cherry-picking” of healthy children into plans), a real concern among children with psychiatric disorders in behavioral managed care. Fragmented care for children in foster care may be especially likely given the move towards mental health carve-outs in the Medicaid program and their frequent changes in caregivers. Frequent changes in caregivers may also contribute to the lower SSI enrollment among children in foster care, even though they are most likely eligible for the program.

The results of this study may be limited by its reliance on Medicaid claims data, which do not include records of services provided in other sectors, are inherently limited in the quality of diagnostic information available, and have no information on the extent of unmet needs among this population. Nevertheless, this analysis clearly demonstrates that children in foster care use significantly more Medicaid-reimbursed mental health services than children eligible for Medicaid through AFDC, and that special emphasis needs to be placed on the mental health needs of these children. To ensure that children in foster care receive the benefit of mental health services, behavioral managed care organizations should be paid a capitation rate that accurately reflects the need for and use of services by these children. The low rates of enrollment in the SSI program are at odds with previous data on the presence of chronic disorders, such as ADHD, and impairment among foster children, suggesting that many children in foster care who could qualify for SSI are not enrolled. Behavioral services and child welfare programs serving foster children would improve the quality of life for these youth by assisting with their enrollment in the SSI program as part of Title XVI of the Social Security Act, thus increasing their capitation rates. Another logical solution to this problem would be to allow for a separate capitation rate for children in foster care. Such a rate would approximate that for SSI children in our study.

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REFERENCES