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Home- and Community-Based Waivers for Children With Autism: Effects on Service Use and Costs

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Abstract

We examined (a) the associations between Medicaid home and community-based waiver participation and service use and expenditures among children with ASD; and (b) how states' waiver spending moderates these effects. We used 2005 Medicaid claims to identify a sample of children with autism spectrum disorder (ASD). We selected two comparison groups who had no waiver participation: (a) children who were eligible for Medicaid through disability (disability group), and (b) children who had at least one inpatient/long-term care (IP/LT) episode (IP/LT group). Waiver participants were less likely to use IP/LT services and had lower associated expenditures than the disability group. As states' waiver spending increased, waiver participants became increasingly less likely to use IP/LT services. Waiver participants had more outpatient visits and associated expenditures; this difference increased as state waiver spending increased. Compared with the IP/LT group, waiver participants had lower IP/LT expenditures, more outpatient visits, and associated expenditures. Higher state waiver generosity increased this effect on outpatient visits and expenditures.

Keywords

Autism spectrum disorder; Medicaid; outpatient care; inpatient/long-term care; home- and community-based waivers

Since home- and community-based (HCB) waivers were authorized under section 1915(c) of the Social Security Act in 1981 (LeBlanc, Tonner, & Harrison, 2000), state Medicaid agencies have used them to support people with special needs who are at risk of being placed in institutional care (Amaral, 2010; Harrington, Carrillo, Wellin, Miller, & LeBlanc, 2000; Kitchener, Carrillo, & Harrington, 2003; LeBlanc et al., 2000; Rizzolo, Friedman, Lulinski-Norris, & Braddock, 2013). The primary intent of these waivers is to help these people continue to live in their homes and communities (Medicaid program; Home and community-based services—HCFA. Final rule, 1985; Rizzolo et al., 2013). Through waiver programs, states may grant Medicaid eligibility to people who would not traditionally be eligible, as long as the person would otherwise be at high risk for institutionalization (Fox & Kitt, 2004; Rizzolo et al., 2013; Spearman et al., 2001; Van Houtven & Domino, 2005). In addition, states may offer a variety of medical, nonmedical, social, and supportive services

that are not listed in their Medicaid plans, such as adult day care, home health aide, personal care, habilitation, respite, homemaker, and case management, home modifications, and specialized medical equipment and supplies (Fox & Kitt, 2004; Rizzolo et al., 2013; Spearman et al., 2001; Van Houtven & Domino, 2005). The desirability of these HCB waiver services is evidenced by the estimated 330,000 people across the United States—including 16,000 children—who are on a waiting list for an HCB waiver (Eskow, Pineles, & Summers, 2011; Kaiser Family Foundation, 2007).

Since the inception of the HCB waiver program, researchers and policymakers have expressed concerns about its cost-effectiveness (Amaral, 2010; Anderson, K. , & Mitchell, 2004; Anderson, K. H., & Mitchell, 1997; Coburn, Kilbreth, Fortinsky, McGuire, & Adler, 1990; Fox & Kitt, 2004; Harrington et al., 2000; Kitchener et al., 2003; Spearman et al., 2001; Van Houtven & Domino, 2005). If HCB waiver services are used in lieu of expensive inpatient or long-term care services, then Medicaid expenditures per patient should fall, generating program savings (Anderson, K. H., & Mitchell, 1997). Previous research, however, suggests that HCB waiver programs, particularly those targeted to the elderly, may broaden both the scope of services and the population served so that those who are not at risk of institutionalization and who would otherwise rely on private resources instead rely on Medicaid-funded services (Coburn et al., 1990; Hughes, 1985; Weissert, 1985). Moreover, aggregate Medicaid expenditures may rise if the diversion into alternative care services of some enrollees from inpatient or long-term care settings results in additional placements in these settings among other Medicaid enrollees (Coburn et al., 1990).

Recently, HCB waivers have emerged as an important option for addressing the needs of children with autism spectrum disorders (ASD) (Eskow et al., 2011; Hall-Lande, Hewitt, & Mosley, 2011; Report on State Services to Individuals with Autism Spectrum Disorders (ASD). Centers for Medicare & Medicaid Services (CMS) ASD Services Project, 2011; Spigel, 2007). Over the past 30 years, the prevalence of ASD has increased sharply (Centers for Disease Control, 2013; Wang & Leslie, 2010) creating challenges for Medicaid, the largest payer for ASD-related medical care services, to meet the growing demand. ASDs comprise complex neurodevelopmental conditions; people with ASD are best served with a broad array of services across their lifespan (Farmer, Dorsey, & Mustillo, 2004; Hall-Lande et al., 2011; Solhkhah, Passman, Lavezzi, Zoffness, & Silva, 2007). For most states, Medicaid waivers have become an important avenue for covering the services needed to build a comprehensive system of community-based care (Eskow et al., 2011; Hall-Lande et al., 2011; Report on State Services to Individuals with Autism Spectrum Disorders (ASD). Centers for Medicare & Medicaid Services (CMS) ASD Services Project, 2011.; Spigel, 2007). Some states have enacted ASD-specific HCB waiver programs, whereas other states provide waiver services as part of broader HCB waiver programs designated for people with disabilities (Eskow et al., 2011; Hall-Lande et al., 2011; Report on State Services to Individuals with Autism Spectrum Disorders (ASD). Centers for Medicare & Medicaid Services (CMS) ASD Services Project, 2011; Spigel, 2007). As of 2010, thirteen states offered a waiver program specifically for people with autism; of these, eleven were for children (Hall-Lande et al., 2011). Other states provided autism services as part of a broader HCB waiver.

Evaluations of the effect of waiver enrollment on service use, expenditures, and outcomes are rare. Studies have examined the characteristics of HCB waiver programs (e.g., cost, accessibility, trends) (Amaral, 2010; Hall-Lande et al., 2011; Harrington et al., 2000; Kitchener et al., 2003; Kitchener, Ng, & Harrington, 2004; Konetzka, Karon, & Potter, 2012; Laudicina & Burwell, 1988; LeBlanc et al., 2000; Rizzolo et al., 2013; Weissert, 1985). Two recent studies (Hall-Lande et al., 2011; Rizzolo et al., 2013) presented the national status of HCB service waivers for people with intellectual and developmental disorders and ASD, respectively. Two published studies have examined Medicaid waivers and autism. Shattuck, Grosse, Parish, and Bier (2009) found that initial racial and socioeconomic disparities in Wisconsin's Medicaid program for children with autism decreased over time. Eskow and colleagues (2011) found that families of children with autism who received waiver services reported higher quality of life than those not receiving these services. Whereas a number of important efforts have tracked waivers for children with autism nationally (The National Residential Information System Project (RISP). University of Minnesota; States of States in Developmental Disabilities. University of Colorado; see <http://www.stateofthestates.org/>), none to our knowledge has examined their effects on service use and associated expenditures.

In the current study, we use Medicaid claims to estimate the effects on service use and expenditures of waiver program participation among children with ASD. We also examine how state generosity in providing waiver services moderates the effect of waiver program participation on service use and expenditures. Of particular interest is the effect of waivers in reducing the risk of institutionalization and overall Medicaid program expenditures.

Methods

Data and Sample

Data for this study came from the 2005 Medicaid Analytic Extract (MAX) data files. All states are required to submit their Medicaid eligibility and claims data to Centers for Medicare and Medicaid Services (CMS) on a quarterly basis. The MAX data files contain individual-level Medicaid enrollment and personal information (e.g., demographic) and four separate files of encounter-level claims: inpatient hospital, long-term care, other services, and prescription drug files. Service use and expenditure variables were constructed from these claims files.

Study subjects were identified as having ASD if they had at least one inpatient or long-term care claim, or two outpatient claims in calendar year 2005 associated with an International Classification of Diseases (ICD-9) (Medicode, 1987) primary diagnosis of 299. These criteria were used to ensure that children were not classified as having ASD because of coding errors or because of a "rule out" diagnosis. This classification scheme has been used in previous studies for 10 years (Mandell, Listerud, Levy, & Pinto-Martin, 2002) and has been found to be accurate for ASD in private insurance claims (Burke et al., 2014) and for other psychiatric diagnoses (Lurie, Popkin, Dysken, Moscovice, & Finch, 1992).

All encounter-level claims associated with a psychiatric diagnosis (primary ICD-9 diagnosis codes 290–319) of the sample of children with ASD were extracted and service use and

expenditure variables were constructed. We did not require that claims be associated with a 299 diagnosis because children with ASD may receive care associated with other disorders, either because the disorders are truly co-occurring or because they have been assigned as a way of qualifying for services. We constructed variables that represented the number of inpatient episodes, long-term care placements, and outpatient encounters the person had during 2005 and associated service expenditures. In addition, we constructed number of episodes in each service type (i.e., inpatient, long-term care, and outpatient) that had been paid under the HCB waiver program. We used “type of program,” provided in the Medicaid claims, to determine whether the service was paid for through a HCB waiver. To control for the different time periods children were enrolled in Medicaid, all service use and expenditure variables were divided by the number of months the person was eligible for Medicaid to calculate monthly service use and expenditures. As ASDs often co-occur with other medical conditions (Levy et al., 2010; Peacock, Amendah, Ouyang, & Grosse, 2012) indicators of common comorbid psychiatric and neurological diagnoses were also constructed from the claims data. They were identified using ICD-9 codes and included schizophrenia (295), bipolar disorder (296, excluding major depressive disorder [296.2 and 296.3]), depression (311, 296.2 and 296.3), anxiety disorders (300), attention deficit hyperactivity disorder (ADHD) (314), intellectual disabilities (317–319), and seizure disorders (345). Finally, from the personal summary files of the MAX data, we extracted eligibility and demographic information and merged these with the service use and expenditure information.

The sample was restricted to include individuals, younger than 21 years of age, who were not in foster care, and whose mental health-related claims were paid under fee-for-service (FFS). Excluding individuals enrolled in managed care plans was necessary because of concerns regarding the consistency and quality of the encounter records in the MAX files. According to CMS (<https://questions.cms.gov/faq.php?id=5005&faqId=2457>), the records of services provided through FFS providers are reasonably complete. The same is not true for records from managed care plans. Whereas federal law and CMS require states to collect and report encounter data, CMS has not enforced this requirement (U.S. Department of Health and Human Services, Office of Inspector General, 2009). As a result, the consistency and quality of reporting for encounters is not of high enough quality and completeness to support research and other types of data analyses using encounter records. The CMS notes that this same limitation does not apply for people covered by primary care case management plans because these claims are usually paid under FFS; we therefore treated these claims as FFS claims. Because our main concern was the completeness of mental health-related claims, we excluded only those who had any mental health-related claims that were covered under managed care.

Measures

Outcomes of interest were community- and out-of-community-based health care use and expenditures associated with a psychiatric diagnosis incurred by Medicaid-enrolled individuals diagnosed with ASD. Community-based service use was measured by the number of outpatient visits that occurred on different calendar dates. Out-of-community-based service use comprised the sum of the number of inpatient and long-term care episodes

(refer to as IP/LT care use). IP/LT care use was measured by an indicator of any use of IP/LT care services. Service expenditures were calculated using the amount paid by Medicaid for each encounter claim. For each type of service, associated expenditures were summed across claims. Total expenditures comprised the sum of outpatient and IP/LT expenditures. To adjust expenditures for the price level differences across states, we used 2005 regional price parity index in medical services (Aten, Figueroa, & Martin, 2011).

Waiver participation was the primary independent variable. The eligibility information the MAX provides in person-level files include a “waiver” category, but our comparison of this variable with known waiver enrollment in each state revealed this as a dramatic undercount of the number of individuals enrolled in the waiver. We therefore identified individuals as waiver-enrolled if they had claims associated with a psychiatric diagnosis that were covered under HCB waiver program.

A second independent variable of interest was the generosity of the state of residence in providing HCB waiver services for children with autism. We measured state generosity using the state’s average expenditures on their HCB waiver program for children with autism. For each state, we averaged the waiver program expenditures targeting kids with autism, obtained from the MAX data, over the individuals with autism who resided in that state. For each individual, we assigned the average expenditures on waiver services corresponding to their state of residence. The state average expenditures on HCB waivers were also adjusted for price level differences across states using the 2005 regional price parity index in medical services (Aten et al., 2011).

Demographic and clinical characteristics included age, gender, race/ethnicity, and presence of comorbidities. Race and ethnicity were coded as white, black, Hispanic, or other. Comorbid psychiatric diagnoses included in the analyses were schizophrenia, bipolar disorder, depression/anxiety disorders, attention deficit hyperactivity disorder (ADHD), intellectual disability, and seizure disorders. To ensure that state waiver generosity effects were not merely a proxy for overall state generosity in providing services to children with ASD, we also included state average expenditures, obtained from the MAX data, for children with autism on non-waiver mental health related services.

Construction of Comparison Groups

From the sample of children who were not waiver participants, we defined two comparison groups: (a) those who were eligible for Medicaid through disability (disability group) and (b) those who had at least one IP/LT care episode during 2005 (IP/LT group).

We chose children eligible for Medicaid through disability for comparison because they are likely to share similar clinical characteristics as waiver participants. Both waiver enrollees and those enrolled in Medicaid through the disability category have impairments great enough to qualify them for Medicaid-reimbursed services independent of family income. Waiver-enrolled children may be more impaired, however, because by definition they must be at significant risk of institutionalization. We therefore consider the difference in expenditure between the disability and waiver groups to provide a lower-bound estimate of cost savings associated with the waiver.

Our second control group included those children who did not use any waiver services and had at least one claim for IP/LT care at some point in 2005. To be eligible for waiver services, a physician must determine that the individual is at risk of either hospitalization or institutionalization in a long-term care facility (Medicaid program; Home and community-based services–HCFA. Final rule, 1985). In practice, however, the risk for institutionalization or hospitalization among waiver-enrolled children is unknown. Therefore, the difference in expenditure between this second comparison group and the waiver group likely represents the upper bound of cost savings associated with the waiver.

These two comparison groups were not mutually exclusive, so the two sets of analyses were conducted separately.

Analysis

Both descriptive and multivariate analyses were employed to assess the associations between waiver participation, state waiver program generosity and service use and costs. Descriptive analysis was used to examine the comparability of the waiver and comparison groups; to compare demographic and clinical characteristics; and to examine service use and costs. Differences in proportions between waiver and comparison groups were evaluated with chi-square tests, and differences in continuous measures were evaluated with *t*-tests.

Multivariate regression techniques were used to estimate the effect of the waiver participation and state waiver program generosity on service use and costs. Each estimated regression equation included waiver participation, state average expenditures on waiver services and the interaction between these two variables as the main independent variables of interest. The interaction variable was included to assess how state generosity in providing waiver services moderates the effect of waiver participation on service use and costs. All models controlled for sex, race/ethnicity, comorbidities, and state average expenditures on nonwaiver mental health-related services. Because individuals were nested within states, multilevel regression models were used. Each regression equation includes state random effects to correctly adjust standard errors for the correlation among individuals who lived in the same state.

For the probability of IP/LT care use, a logit model was employed, and the odds ratios were reported. For the number of outpatient visits, a Poisson regression model was employed, and incidence rate ratios (IRRs) were reported. The IRRs are obtained by exponentiating the Poisson regression coefficients and estimate the rate of occurrence of the outpatient visits for waiver group relative to the specific comparison group. For the expenditure models, monthly expenditures were transformed to a logarithmic scale to reduce skewness, and a series of multivariate ordinary least squares semi-log regression models for outpatient, IP/LT services and total expenditures were estimated. For the outpatient and total expenditures, we estimated unconditional expenditure models. For the IP/LT care expenditures, because most of the children had zero expenditure and we already estimated a logit model of positive IP/LT expenditures, we estimated IP/LT service expenditures conditional on use of these services. For the expenditure models, we reported the percentage effect on the outcome variable which were calculated from the regression coefficients (Halvorsen & Palmquist, 1980).

Interpretation of coefficients in models with interaction terms requires caution. In our models, any effect of waiver participation is conditional on state per-child spending. For ease of interpretation, we report marginal effects of waiver participation when state per-child spending is set at zero. We interpret this as an estimate of the association between waiver participation and the outcome of interest at low levels of state per-child waiver spending. Then we report how one-unit increase in the state per-child spending moderates this association.

Results

Table 1 presents bivariate comparisons of variables among waiver participants, children eligible through disability (disability group), and children who had at least one IP/LT care episode (IP/LT group) but were not enrolled in a waiver. The figures in bold indicate statistically significant differences between waiver participants and the other group at $p < .05$. About 18% of the 60,704 children in the sample had used waiver services.

The waiver group differed from the other two groups in demographic and clinical characteristics. Compared with the disability group, waiver participants were older, more likely to be white and Hispanic, less likely to be black, less likely to have schizophrenia/bipolar disorder, and ADHD, but more likely to have intellectual disabilities.

Compared with the IP/LT group, waiver participants were younger, less likely to be black, more likely to be Hispanic, less likely to have schizophrenia/bipolar disorder, depression/anxiety, ADHD or seizure disorder, and more likely to have intellectual disabilities.

Service use and expenditures varied significantly between waiver and non-waiver participants. The waiver group was less likely to use IP/LT care services than the disability group. The waiver group had more outpatient visits and associated expenditures than both comparison groups. Average monthly expenditures were \$1,892 for waiver participants, \$801 for the disability group, and \$3,739 for the IP/LT group. There were no statistically significant differences in IP/LT expenditures among users of IP/LT services in the three groups.

States' average monthly spending on HCB waivers for children with autism varied from a low of zero in Arizona, District of Columbia, Delaware, Florida, Massachusetts, Missouri, Oregon, Pennsylvania, and South Dakota to highs of \$1,122, \$1,125, \$1,167, and \$1,519 in Utah, West Virginia, North Carolina, and Hawaii, respectively.

Table 2 shows regression results for the effect of waiver program on service use and costs compared with the disability group. We report only the results for the main variables of interest adjusted for the variables discussed in the previous section. In each of the five regression equations, disability group is the reference category. The first column reports odds ratios (ORs) from the logit regression of any IP/LT care service use during the month. Compared with the disability group, the waiver group was 62% less likely to use IP/LT care services when state per-child spending was set at zero. The interaction term between waiver participation and state average waiver expenditures was statistically significant and indicated that, on average, for every \$100 increase in states' per-child waiver spending, the

probability of hospitalization/institutionalization declined by an additional 6% compared with the disability group.

The second column of Table 2 presents IRRs from the Poisson model for number of outpatient visits. The waiver group had 44% more outpatient visits than the disability group when state per-child spending was set at zero. For every \$100 increase in states' waiver expenditures, number of outpatient visits increased an average of 3% relative to the disability group.

Columns 3–5 in Table 2 present regression coefficients predicting expenditures. Among users of IP/LT care services, expenditures for these services were 30% less for the waiver participants than for the disability group. The coefficient of the interaction term was not significant. Outpatient service expenditures for waiver participants were 410% greater than the expenditures for the disability group conditional on zero state per-child waiver spending. For each \$100 increase in states' per-child waiver spending, outpatient service spending for the waiver participants increase by an average of 1% relative to the disability group. Total expenditures for the waiver participants were 405% greater than the total expenditures for the disability group conditional on zero state per-child waiver spending. Each \$100 increase in state per-child waiver spending was associated with a 3% decrease in the difference in expenditures between the waiver and disability groups. Our statistical model suggests that when state per-child waiver spending exceeds \$5,400, total expenditures for the waiver participants are less than the total expenditures for the disability group.

Table 3 shows regression results comparing waiver participants with the IP/LT group. Compared with the IP/LT group, waiver participants had 64% more outpatient visits conditional on zero state per-child waiver spending. For every \$100 increase in state per-child waiver expenditures, the number of outpatient visits increased an average of 2% relative to the IP/LT group. Columns 2–4 in Table 3 present regression coefficients from the log expenditure estimations. Among users of IP/LT services, expenditures for these services were 30% less for the waiver participants than for the IP/LT group. The coefficient of the interaction term was not significant. The waiver group had 692% greater outpatient spending than the IP/LT group conditional on zero state per-child waiver spending. For every \$100 increase in state per-child waiver spending, outpatient expenditures for the waiver group increased by 5% relative to the IP/LT group. Waiver participants also had 58% less overall total expenditures than the IP/LT group conditional on zero state per-child waiver spending. Each \$100 increase in state per-child waiver spending increased the total expenditures for the waiver group by 6% relative to the IP/LT group. Total expenditures for the waiver participants were less than the total expenditures for the IP/LT group as long as state per-child waiver spending was less than \$1,450.

Discussion

Medicaid waivers are an important and growing mechanism for funding health care delivered to children with ASD (Eskow et al., 2011; Hall-Lande et al., 2011; Report on State Services to Individuals with Autism Spectrum Disorders (ASD). Centers for Medicare & Medicaid Services (CMS) ASD Services Project, 2011; Spigel, 2007). To date, there has

been no economic evaluation of the effects of these waivers on service use and costs among children with ASD, and no evaluation of whether these waivers serve their intended purpose of keeping individuals with disabilities out of more restrictive and expensive forms of care. We found that waivers for children with ASD meet this mission: compared with children enrolled in Medicaid through the disability category, and controlling for a host of clinical and demographic variables, children receiving waiver services were less likely to be hospitalized or placed in long-term care. When they were hospitalized, waiver-enrolled children had lower expenditures than both children enrolled through disability and those who had any hospitalization or long-term care, suggesting that they return to their homes and communities more quickly. Also of importance, states that were more generous in waiver spending additionally reduced the risk of hospitalization and long-term care placement for children with ASD enrolled in waivers.

The results of the economic evaluation are more complicated. The reduction in expenditures associated with out-of-community placements among waiver-enrolled children was offset by outpatient expenditures. Total expenditures for waiver-enrolled children were much greater than for children enrolled through disability. As states' waiver spending increased, however, the difference in expenditure decreased. The break-even point for states with waivers, assuming the same rate of cost savings as waiver spending increases, was \$5,400 per month per child. The largest per-child waiver spending in our sample was \$1,519, suggesting that no state spends enough through waivers to realize cost savings from this program. This amount should be put in context. The most recent studies of Medicaid-reimbursed healthcare expenditures for children with ASD find average monthly amounts of approximately \$1,800 (Wang & Leslie, 2010); states with the greatest waiver program expenditures observed in the current study fall short of this amount by about \$300.

When children who had any hospitalization or long-term care but were not enrolled in the waiver were compared with waiver-enrolled children, a cost savings was observed when state per-child waiver monthly spending was under \$1,450. Relative to this group, all states but Hawaii realized cost savings from the waiver program.

Some states' reticence to expand waiver programs to new target groups such as children with autism is understandable. Waivers can be thought of as experiments to improve care and outcomes for people with potentially high health care costs. Waivers are legally binding documents, in that the state is obligated to pay for all care for the target group listed in the waiver. Therefore, states often significantly restrict waiver enrollment or services to ensure cost neutrality of the waiver. The results of this study suggest that only by bringing waiver-related spending in line with typical healthcare spending for children with autism will states realize cost savings hoped for through these programs.

Some study limitations should be noted. First, our analysis was cross sectional and relied on 1 year of data. Second, we identified waiver services by a code associated with each claim. This code has not been validated as a measure of waiver enrollment. Third, Medicaid claims offer no measure of clinical or functional severity. We provided two comparison groups as a way of addressing this concern, but there may be unobservable differences in severity among the three groups. Third, most children with ASD receive services through the

education system and paid for out-of-pocket by families (Ganz, 2006). Use of these services may have differed by group. In addition, children with ASD may be dually enrolled in public and private insurance; we are unable to observe whether expenditures in one system (Medicaid) were associated with expenditures in another.

Despite these limitations, there are important implications related to these findings. First, the differences in expenditures among children enrolled through waivers, enrolled through Medicaid disability, and those with any inpatient or long-term care expenditures suggest the need to examine closely the criteria used for waiver enrollment. The economic benefit of the waivers may be limited to those who are more severely impaired. Second, the findings provide a spending benchmark for states, although more work is required to determine which group constitutes the best comparison group for waiver-enrolled children.

The passage of the Olmstead Act of 1999 (527 U.S. 581, 119 S. Ct. 2176.) which states that individuals with psychiatric and developmental disabilities should receive care in the community to the fullest extent possible, reaffirmed our social value of community integration and participation. These results clearly demonstrate the importance of the Medicaid waiver program in putting this value into action for children with ASD.

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Table 1

Sample Description*

Variable	Waiver (n = 10,693)	Disability (n = 34,424)	IP/LT (n = 2,419)
Any inpatient/long-term care stay	2%	5%	100%
Number of outpatient visits	7.28	3.87	4.73
Inpatient/long-term care expenditures (among users) (\$)	2956	3157	2981
Outpatient expenditures (\$)	1,822	637	757
Total expenditures (\$)	1,892	801	3,739
Age (years)	11	10	13
Male	0.80	0.79	0.81
White	0.63	0.48	0.62
Black	0.11	0.19	0.14
Hispanic	0.09	0.07	0.05
Diagnosed with schizophrenia/major mood disorder	0.04	0.07	0.50
Diagnosed with depression	0.05	0.05	0.27
Diagnosed with ADHD	0.09	0.18	0.39
Diagnosed with intellectual disability	0.34	0.12	0.20
Diagnosed with a seizure disorder	0.06	0.06	0.09
State average per-child spending on waiver services	514	187	212
State average per-child spending on nonwaiver services	650	738	780

Note: ADHD = attention deficit hyperactivity disorder; IP/LT = inpatient/long-term care.

* Bold numbers indicate that variable values are found to be statistically significantly different from variable values for waiver participants at $p < .05$.

All service use and expenditure measures are per month.

Table 2

Regression results predicting service use and costs, comparing waiver participants with enrollees eligible through disability

	Had IP/LT visit OR	Number of OP visits IRR	Log IP/LT expenditures (among users) coeff.	Log OP expenditures coeff.	Log total expenditures coeff.
Waiver participant	0.38	1.44	-0.36	1.63	1.62
State average spending on waiver services	1.05	0.99	0.02	0.03	0.05
Waiver participant X state average spending on waiver services	0.94	1.03	-0.03	0.01	-0.03

Note: IP/LT = inpatient/long-term care; OR = odds ratio; IRR = incidence rate ratio; OP = outpatient care.

Bold numbers indicate statistical significance at $p < .05$.

Table 3

Regression results predicting service use and costs, comparing waiver participants with enrollees who had at least one IP/LT episode

	Number of OP visits IRR	Log IP/LT expenditures (among users) coeff.	Log OP expenditures coeff.	Log total expenditures coeff.
Waiver participant	1.64	-0.35	2.07	-0.87
State average spending on waiver services	1.01	0.01	0.02	0.01
Waiver participant X state average spending on waiver services	1.02	-0.03	0.05	0.06

Note: IP/LT = inpatient/long-term care; IRR = incidence rate ratio; OP = outpatient care.

Bold numbers indicate statistical significance at $p < .05$.