DATA BRIEF | MAY 2018

CHCS Center for Health Care Strategies, Inc.

FACES OF MEDICAID SERIES

Children in Medicaid Receiving Behavioral Health Services: Patterns of Psychotropic Medication Use, 2005 and 2008

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IN BRIEF

Although children who use behavioral health services represent a small portion of the overall Medicaid population, the Medicaid program is a major source of funding for children's behavioral health care. This data brief updates the Center for Health Care Strategies' national analysis of 2005 Medicaid claims data for children's psychotropic medication utilization and expenditures. It explores psychotropic medication use based on 2008 Medicaid Analytic eXtract (MAX) claims data to provide insights to help guide improvements in care coordination, delivery, and financing for this vulnerable population.

The 2013 Center for Health Care Strategies (CHCS) data analysis, ***Faces of Medicaid: Examining Children's Behavioral Health Service Utilization and Expenditures***, based on Center for Medicare & Medicaid Services Medicaid Analytic eXtract claims data from 2005, described aggregate service utilization and expense patterns within Medicaid for children from birth through 18 years of age with mental health and/or substance use disorder (MH/SUD) needs. This second study, which analyzed MAX claims data from 2008, provides an opportunity to examine psychotropic medication use in comparison to utilization in 2005. This comparison highlights potential areas for improvement in treatment, access, and quality.

Overall Population Trends among Children in Medicaid

The overall number of children in Medicaid increased by approximately five percent between 2005 and 2008, for a total population of 30,503,614 enrollees. Within the overall expanded Medicaid population, the distribution of children, by demographics and aid category, remained roughly consistent across the two study years. Notably, and of relevance for examining trends in psychotropic medication use, the population shifted to become slightly younger in 2008, with the percentage of children 0-5 years, already the largest age group of the child Medicaid population in 2005, growing by five percent. (See **Appendix Exhibit A** for a full comparison of children in Medicaid in 2005 vs. 2008 by enrollee characteristics.)

Further demographic variations of interest between the two years included a small increase (.6%) in the percentage of the "Hispanic or Latino" category and a slightly larger increase (1.1%) in the percentage of those selecting "Hispanic or Latino of more than one race." Taken together, these increases raise the proportion of Hispanic or Latino youth from 25 percent to 27 percent. Changes in cultural practice, leading to changes in self-identification and data collection procedures (from White

Made possible through support from the Annie E. Casey Foundation.

to Hispanic/Latino, even if non-Spanish speaking), as well as changes in overall population dynamics, may have contributed to the observed increases in the proportion of youth designated as Hispanic or Latino youth.

In terms of Medicaid eligibility, or aid category, while the vast majority of children in both years were eligible via Temporary Assistance for Needy Families (TANF) (i.e., an indicator of income-level, rather than health needs), the TANF proportion declined slightly (.7%) between 2005 and 2008, with a commensurate 0.6 percent increase in the proportion of those enrolled via SSI/disabled status and a 0.1 percent increase in the foster care population. This increase in the number of children in Medicaid enrolled via the SSI/disabled category between 2005 and 2008 likely reflects documented federal expansion in child SSI eligibility during this period. It is the only Medicaid aid category whose proportion grew to a notable extent between the two study years.

Populations of Children Receiving Behavioral Health Care

Appendix Exhibit B compares mental health and/or SUD service use "penetration rates," or percentage of the overall Medicaid population of children receiving behavioral health care, in 2005 vs. those in 2008. These penetration rates are displayed by type of services used among the subset of children from **Appendix Exhibit A** with behavioral health care utilization (i.e., mental health or SUD services, including therapy and/or psychotropic medication).

In addition to the increase in the overall population of children in Medicaid between the two study years, as noted previously, the proportion of Medicaid youth receiving some type of mental health or substance abuse treatment also increased, from 9.6 percent in 2005, to 9.8 percent in 2008. Taken together, these two trends resulted in 214,877 more children in 2008 having some type of behavioral health care when compared to the number of children receiving such care in 2005.

Among children receiving behavioral health care, the percentage receiving any therapy services, such as individual or family therapy, fell from 70.3 percent in 2005, to 68.6 percent in 2008. In contrast, the percentage of children receiving psychotropic medications rose: from 60.4 percent to 61.4 percent. Fewer children among those receiving psychotropic medications were also receiving any behavioral health therapy services: from 30.7 percent in 2005 to 30 percent in 2008. The percentage of children getting behavioral health therapy services only (no medication) also declined, from 39.5 percent to 38.6 percent. Meanwhile, the number of enrollees receiving only psychotropic medication (no behavioral health therapy) increased by 10 percent, from 490,360 children in 2005, to 536,953 children in 2008.

Implications

The combination of more children enrolled in Medicaid, and more of those children getting behavioral health services and/or psychotropic medication, meant the number of children receiving some kind of behavioral health care in 2008 was eight percent higher than in 2005. Such an increase might be considered a positive indicator, if it meant unmet needs were being addressed. But, the fact that the proportion of treatment by medication versus any other kind of treatment grew, as

well, raises continued questions about the quality of care for children in Medicaid with mental health or substance use needs.

In addition, the fact that the 2008 population is so young means that they would be expected to be predominantly healthy; yet they are getting psychotropic medication at ever-increasing rates. Such findings highlight the importance of the role of states, purchasers and others in monitoring health care service use. This should include reporting on mental health/substance use service utilization rates and prescribing patterns for psychotropic medications in order to identify opportunities for early, targeted intervention and, ultimately, improvement in health status for this highly vulnerable population.

Analysis of Psychotropic Medications by Diagnostic Category

Appendix Exhibits C1 and 2 display utilization among children prescribed psychotropic medications, by medication type and by psychiatric diagnosis. In the context of concerns about over-prescribing, or polypharmacy, examination of the clinical congruence between psychiatric diagnoses and psychotropic medication use can be an important tool for quality management. **Exhibit C1** displays findings from the original analysis of 2005 data, and **Exhibit C2** displays results from a similar analysis of 2008 data. Note: There were two changes in the methods of the 2008 analysis vs. the 2005 analysis: (a) lithium use was merged with mood stabilizer use in 2008; and (b) post-traumatic stress disorder (PTSD) was analyzed as an independent diagnostic category in 2008.

Implications

As indicated earlier, the total number of children receiving psychotropic medications in 2008 was approximately 1.8 million, of those 453,655 had no psychiatric diagnosis. This is a 440 percent increase in the number of children receiving psychotropic medications with no psychiatric diagnosis when compared to 2005. Among those children, attention-deficit hyperactivity disorder (ADHD) prescribing in 2008 continued at approximately the same level (48.7%) as 2005. However, rates of prescription for anti-depressant medications in 2008 among children with no diagnosis fell nearly by half (from 49.4% to 28.8%) when compared to 2005. Other comparisons include a significant decline in the prescribing of antipsychotics for children with no psychiatric diagnosis in 2008 (15.4%) compared to 2005 (28.5%), along with notable increases in mood stabilizer and anxiety medication use among children in this category.

For children with a psychiatric diagnosis, the percentage of those getting ADHD medication who were also diagnosed with psychosis was lower in 2008 than in 2005, but more than a third of such children remain on this regimen, which raises questions about whether the prescribing is consistent with clinical guidelines. Meanwhile, the percentage of children with a diagnosis of psychosis receiving antipsychotics increased, which may indicate improved access. In the 2008 analysis of children with PTSD, the two most frequently prescribed medications were anti-depressants and antipsychotics, both of which are consistent with clinical practice. It is less obvious why ADHD medications would be the third most frequently prescribed psychotropic medication for children with this diagnosis. Lastly, concerns remain about off-label use of antipsychotics for children diagnosed with a developmental disability where a slight decrease was noted, but prescription rates

remain at 63.8%. Other examples of likely off-label use include antipsychotics for "Other Diagnosis," Conduct Disorder, and ADHD.

Populations of Children Prescribed Psychotropic Medications

Appendix Exhibit D displays the demographic and aid category distributions for children with psychotropic medication use, compared to those for all children in Medicaid, in each of the two study years. As noted earlier, more children in 2008 are between 0-5 years of age; however, in addition, there is a remarkable doubling of medication use among children in that age group, meaning 85,843 more very young children in 2008 were exposed to the potential risks of psychotropic medications than in 2005.

There remains an almost 2:1 likelihood of boys to girls being prescribed psychotropic medication, in contrast to the 51 percent representation of boys in the overall Medicaid population; although slightly more girls (0.9 increase) are getting psychotropic medications in 2008 than in 2005. Comparison of race/ethnicity in 2008 vs. 2005 reveals a slight reduction in the largest category of youth receiving psychotropic medications (white), with a fairly stable percentage of Black or African American as the second largest category; but a combined two percent increase in psychotropic medication use among the categories of "Hispanic or Latino," "Hispanic or Latino and one or more races," and "More than one race." In terms of aid category, there was a three percent increase in 2008 in the proportion of children being treated with psychotropic medications who were enrolled via SSI/Disabled.

Implications

Between the 2005 and 2008 data analyses, there was an increase in the percentage of children receiving psychotropic medications, resulting in 157,397 more children in 2008 being prescribed medication to treat psychiatric conditions than in 2005. Despite this overall increase, the rate of psychotropic medication use among those 13 years and older fell slightly between 2005 and 2008, perhaps related to the FDA's "black-box warning" in 2004, which affected use of selective serotonin reuptake inhibitor (SSRI) antidepressants, particularly among adolescents.

Identification of the doubling of psychotropic medication use in preschoolers corroborates the results of a 2011 report by the U.S. Government Accountability Office (GAO) on prescribing patterns for children in foster care, which led to inquiries about the misuse and overuse of psychotropic medications in children. Whether the slight changes in distribution by race/ethnicity between 2005 and 2008 represent true changes in prescribing practice is difficult to determine. Attitudes and practices regarding self-identification and the gathering of race/ethnicity data were evolving during this time frame, so the changes in distribution from decreases in the first two large categories (White and Black/African American) to increases in many smaller categories could be evidence of those larger societal changes. Possible evidence for this is that we see similar changes in the reported race/ethnicity distribution between the two years for the overall Medicaid populations.

Consistent with observations in the GAO report, this data analysis shows the proportion of children in foster care prescribed psychotropic medications, in both study years, is more than five times larger

than the proportion for children enrolled in TANF. It is unclear whether this is related to actual differences in clinical need, or system-driven factors, such as management of youth housed together in group homes, or still other variables. Given the potency of such medications, and the vulnerability of the population, further monitoring and study will be needed to support optimal care delivery in the future.

Patterns of Behavioral Health Service Use for Children Prescribed Psychotropic Medications

Appendix Exhibit E compares differences across the two study years for children receiving psychotropic medication, both with and without accompanying behavioral health therapy, by demographic and aid characteristics.

Between the two study years, the absolute number of children ages 0-5 with psychotropic medication use approximately doubled (from 32,358 to 69,820), however the proportion of very young children in 2008 prescribed such medications who are also receiving behavioral health services remains less than half (43%). Fewer adolescents received any form of mental health or substance abuse treatment along with their psychotropic medications in 2008 (53%) compared to 2005 (55%).

While access to combined treatment dropped across the majority of race/ethnicity categories in 2008 (some dramatically, such as 20 percentage points for Native Hawaiian/Pacific Islanders or 10 percentage points lower for Asians and for Hispanic/Latino populations), there were small increases in the use of psychotropic medications with behavioral health services for Blacks or African Americans, and those of "more than one race," between 2005 and 2008.

In terms of Medicaid aid categories, children in TANF getting psychotropic medications saw a slight decrease (1%) in 2008 in their likelihood of receiving any accompanying behavioral health therapy. However, that reduction in non-medication mental health or substance use service access was even greater among more complex populations of youth receiving psychotropic medications: behavioral health service use rates declined by five percent for children in foster care and by six percent for SSI/disabled populations.

Implications

Overall, there is a significant change in psychotropic medication use between 2005 and 2008. In 2005, medications are more frequently used in combination with some type of psychotherapy, which is the approach with the greatest evidence-base. In 2008, the majority of children prescribed psychotropic medication were getting them without any identifiable mental health or substance use therapeutic services. In addition, well over half of psychotropic medication prescribing for the most vulnerable children (0-5 years) occurred without any other documented mental health care. This would appear to indicate the need for a review of relevant state and federal policies and practices that might inadvertently be contributing to such patterns. Some of that use, when related to stimulant prescription, may represent uncomplicated ADHD treatment with follow-up within primary

care, however, as displayed in **Appendix Exhibit J**, their change in patterns of use includes non-stimulant prescribing.

The fact that children enrolled via foster care and SSI/disabled categories experienced even larger reductions in the receipt of behavioral health therapy, alone or in combined treatment with medication, than did children in TANF is in contrast to what might be predicted about increased complexity and need among children enrolled in Medicaid for reasons unrelated to income. This suggests the observed changes in patterns of service use are not entirely clinically driven.

Use of Psychotropic Medications by Age and Drug Category

Appendix Exhibit F displays the proportion of use for the main psychotropic medications categories within each age group, and in total, for each of the two study years. Overall, for both 2005 and 2008, the most frequently prescribed psychotropic medications were those specifically intended to treat ADHD. In both years, more than two-thirds of the children receiving psychotropic medications were prescribed ADHD medications. School-age children received the preponderance of ADHD medications in both years, but there is a worrisome drift to higher use by 0-5 year old youth, from 64 percent (2005) to 69 percent (2008).

The next most frequent drug category, overall, is anti-depressants; however, there is a drop in the utilization rate of anti-depressants across all age categories in 2008 compared to 2005. Even among adolescents, who are the age group most likely to express suicidal thoughts, the use of anti-depressants declined slightly in 2008 data, presumably following the SSRI warning label by the FDA.

The third most frequent category, in both years, is antipsychotics, rising in use from 26 percent of Medicaid enrolled youth with psychotropic medications in 2005, to 29 percent in 2008. This overall increase is concerning, particularly because the rate reported for 2005 was already far greater than would be expected based on epidemiologic reports indicating the rarity of childhood onset psychosis. Specific antipsychotic prescription rate increases between the two study years were highest among 13-18 year olds receiving medications, of whom 34.1 percent were given one or more medications in this category. The next largest age group with an increased rate of antipsychotic medication use was 6-12 year olds, where the 2008 rate grew to 25.1 percent. Antipsychotic use among 0-5 year olds remains inexplicably high, with a 2008 rate, among children receiving psychotropic medications, of 22.1 percent.

After antipsychotics, the most commonly prescribed psychotropic medication types are those used to treat mood disorders. Combined mood stabilizer and lithium use among 6-12 year olds, who are much younger than the epidemiologic group expected to be diagnosed with mania, rose from a combined rate of 6.8 percent of all psychotropic medication types used by that age group in 2005, to 10.1 percent in 2008. It is even more concerning that 12.4 percent of preschoolers (0-5 year-olds) being prescribed psychotropic medications are getting these powerful medications. (Note: The 2005 data separated reporting for “mood stabilizers” vs. lithium: however, the 2008 reports them together, under mood stabilizer.)

The least frequently prescribed drug category in both study years was anti-anxiety medications. There was a small increase in the overall rate of anti-anxiety use in 2008, which was accounted for entirely by higher rates of utilization among adolescents: 9.4 percent in 2008 vs. 7.3 percent in 2005.

Implications

It is possible that the increase in antipsychotic medication use in 6-12 years olds represents some children from the 0-5 year-old population in 2005, who were previously placed on such medications and were being continued on them. One of the difficulties in psychotropic medication use is that it is easier for new prescribers to add a medication than to discontinue one. It is likely, therefore, that as children begin being prescribed psychotropic medications at a younger age, their total medication "burden" would increase over time resulting in, as yet unstudied, physiologic effects on their growth and development.

The increased use among school children would be consistent with the use of atypical antipsychotics for "behavior management" during this era before there was widespread understanding of the medical risks of overuse or misuse of these powerful drugs. Subsequent studies documented the significant physiologic side effects brought about by the disruptions of metabolism caused by atypical antipsychotics.

Use of Psychotropic Medications by Aid and Drug Category

Appendix Exhibit G displays the proportion of use by psychotropic medication group within each Medicaid aid category, and overall, for 2005 and 2008. Consistent with the age group analysis, more than two-thirds of children prescribed psychotropic medication, across all aid categories and in both study years, got drugs for the treatment of ADHD.

As in 2005, children in foster care or SSI/disabled categories in 2008 are more than twice as likely to be given antipsychotics as children in TANF. However, by 2008, the rate of antipsychotic use by children in foster care (44.3%) surpassed that for children in the SSI/disabled aid category (42.8%) even though a growing proportion of children with SSI were eligible due to psychiatric diagnoses.

The combined proportion of mood stabilizer and lithium medication use rose dramatically for children in the SSI/disabled aid category across the two study years; from 16 percent in 2005, to 24.8 percent in 2008. Almost one-third (29%) of youth in TANF receiving psychotropic medications were prescribed antipsychotics and/or mood stabilizers/lithium.

Implications

The overall increase in antipsychotic medication use seen in 2008 is primarily driven by increased prescribing of this drug type for children in foster care (pre-dating the GAO report.) In 2005, children in foster care used antipsychotic medications at close to, but just under, the rate for children in the SSI/disabled category. By 2008, children in foster care were using more such medications than SSI/disabled children. As noted earlier, rates of psychosis were not comparable to the rate of antipsychotic prescribing for either aid category, suggesting their primary purpose was for "behavior management" or chemical restraint.

Similarly, the large increase seen in the rate of mood stabilizer medications and/or lithium use among children in the SSI/disabled aid category is also inconsistent with trends in clinical diagnosis or treatment guidelines. Since the table represents percentages, the increases in any category are not related to the growth in absolute numbers of children in the aid category. There is also no corresponding leap in the diagnosis of mood disorders in the SSI/disabled aid category, or in children in general, during these years.

These prescribing trends, along with the large number of TANF youth getting powerful drugs such as antipsychotics or mood stabilizers, which appear at odds with diagnosis, may reflect larger care delivery system changes, such as staffing patterns or lack of access to psychosocial interventions

Rates of Concurrent Psychotropic Medication Use

Comparisons of psychotropic medication patterns of concurrent use by age and aid category, as well as the related presence of any behavioral health service use, were done for the years 2005 and 2008. In 2008, a new analysis was done of concurrent psychotropic medication use by race/ethnicity, for children.

Implications

Age Category

Appendix Exhibit H displays the distribution of concurrently prescribed psychotropic medications, by age, for the two study years. Overall, the percentage of children getting two more psychotropic medications rose slightly from 33 percent in 2005 to 34 percent in 2008. The largest increase in concurrent prescription, between the two years, was for children 6-12 years of age, where the rate rose from 28.8 to 30.6 percent of total prescriptions. For 0-5 year olds, the percent of children with two or more concurrent medications increased from 19.9 to 20.8 percent, and use of two or more psychotropic medications by 13-18 year olds rose from 39.1 to 40.9 percent. Adolescents continued to have the greatest likelihood for three or more simultaneous psychotropic medication prescriptions, at 14.4 percent in 2008.

In 2008, not only were more children getting psychotropic medications compared to 2005 (both in absolute numbers, as well as percentage of the child Medicaid population), but those with psychotropic medications were taking more simultaneous drug types per child than those in the 2005 study. Among very young children, 21 percent have two or more psychotropic medications prescribed concurrently, raising questions about appropriate use, given the relative infrequency of any psychiatric diagnosis in the 0-5 age group, and the fact that the majority of early childhood conditions would not be anticipated to require medication. Long-term health effects of such trends are as yet unstudied.

Aid Category

Appendix Exhibit I displays a similar analysis of the distribution of concurrently prescribed psychotropic medications, this time by Medicaid aid category, for the two study years**.** There are small increases in the use of two or more concurrent prescriptions across every Aid Category, as well as larger differences in the absolute numbers of children in each Aid Category who are receiving

psychotropic medications. Overall, in both years, approximately 49 percent of children in foster care who are receiving psychotropic medications, 47 percent of children eligible via SSI/disabled status, and 26 percent of children enrolled in TANF, have two or more concurrently prescribed drug types.

The distribution by aid category is almost unchanged from 2005 to 2008, but the number of children at virtually every level of psychotropic medication use involving more than one drug increased across aid categories, continuing to prompt questions about appropriate use.

Race and Ethnicity

Appendix Exhibit J displays the number of children concurrently prescribed psychotropic medications by race/ethnicity in 2008 (data not available for 2005). Of the Medicaid children enrolled in 2008 who were prescribed psychotropic medications, within race/ethnicity categories, those most likely to receive more than one drug type concurrently were "White" children (35%), children of "more than one race" (35.9%), and children whose race was "unknown" (39.5%). Children in the next most likely groups included "Black or African-American" children (31.1%), "Hispanic/Latino and one/more races" (32.6%), and "American Indian/Alaska Native" (33%). Those least likely to receive two or more psychotropic medications concurrently included children identified as "Asian" (26.3%), followed by those identified as "Hispanic or Latino" (29%), and "Native Hawaiian/Pacific Islander" (29.5%).

Analyses of race/ethnicity determinations and patterns of care are confounded by questions of access, and appropriateness of treatment decisions. With regard to medication use, the evidence base for access disparities versus need tells us that there are children in need of psychotropic medication prescriptions who are not getting them. At the same time, from recent research into populations such as children in foster care, and from the results of this analysis, medication utilization rates for some children indicate possible over-use. In this study, among known race/ethnicities, whites and non-Latino, multi-racial children lead all categories in likelihood of concurrent medication use. In addition, although white children represent only 37 percent of children enrolled in Medicaid, they represent 59 percent of all children receiving multiple psychotropic medications.

After white children, the next largest group receiving more than one concurrent psychotropic medication is Black/African American children; within that category, 31 percent of children get more than one drug type. However, across all children getting more than one psychotropic drug, Black/African American children represent 19 percent, which is somewhat lower than the 25 percent of the population they represent among Medicaid-enrolled children. This, again, raises questions of disparities in access to care. It is not possible to determine from this data what the "right" number of children to get multiple psychotropic medications is, but it is possible to identify differences in patterns of use, associated with race/ethnicity.

These trends continue in subsequent groups: the next largest concurrent medication use rate is found in the race/ethnicity category "Hispanic or Latino"; within that category, 29 percent of the children get more than one drug type. Across race/ethnicity categories, "Hispanic or Latino" youth represent eight percent of those getting more than one psychotropic medication prescription, although they represent 23 percent of children enrolled in Medicaid.

In contrast, with 26 percent of children within the category identified as "Asian" receiving two or more drug types, these children have the lowest risk of being prescribed multiple psychotropic medications. Among children with two or more drug types, Asian children make-up 0.3 percent, a rate that is far below their representation of two percent of children in Medicaid overall.

These large discrepancies across racial and ethnic categories raise questions about health care disparities, including risks for both over and under-utilization. The findings speak to the need for further study of appropriateness and quality of care for children of all race/ethnicities who are receiving psychotropic medications.

Psychotropic Medication Use without Accompanying Behavioral Health Services

Appendix Exhibit K compares concurrent medication use trends among children who are receiving psychotropic medications accompanied by physical health services only, i.e., no mental health or substance use therapies, in 2005 and 2008. Overall, the number of children receiving psychotropic medication with no accompanying services by mental health clinicians rose 9.4 percent between the two study years (490,360 children in 2005, to 536,593 children in 2008). Twenty-one percent of children with no other mental health care were being prescribed two or more types of psychotropic drugs concurrently in 2008, up from 19.5 percent in 2005, with a corresponding drop in the proportion of children receiving only one psychotropic medication.

The 2005 findings of prescription of psychotropic medications without concomitant mental health care continued in 2008. The trends in distribution of concomitant prescription are also of concern, showing a reduced percentage of children on a single medication, and more children on two or more psychotropic medications concurrently. As noted in earlier analyses, such trends are inconsistent with clinical guidelines or epidemiologic trends. Out of all the ways utilization of psychotropic medication has been examined, this group of half a million children represents the most disturbing trend. Increased prescribing of multiple, high-potency medications appears to be happening in the absence not only of mental health or substance use therapies, but also without a single medication management encounter with either a mental health provider or prescriber.

Expense Analyses for Psychotropic Medication use in Children in Medicaid

As shown in **Appendix Exhibit L**, psychotropic medication expense increased 38 percent between 2005 and 2008. Total psychotropic drug expense grew by $600 million; total mean expense rose 84 percent, for a rate of $1,195 per child in 2008. The biggest jump in pharmacy expense by aid category was among children enrolled in foster care, who saw a mean expense increase of 118 percent (from $934 to $2,039) per child for psychotropic medication use. Mean expense rates for psychotropic medication use among children in the SSI/disabled category rose 109 percent, to $1,910 per child in 2008; rates for children in TANF increased by 60 percent, to $758 per child.

Implications

Aid Category

The steep rise in psychotropic medication expense among children enrolled in foster care is consistent with the service use trends noted in the GAO report and in this analysis above noting the increased use of certain psychiatric medications among children in foster care. However, the expense differential (118%) for children in foster care is greater than their utilization increase, which suggests that newer, proprietary drugs were drivers of their increased pharmacy expense.

Appendix Exhibit M compares mean expense by psychotropic medication type and aid category for each of the two study years. As noted earlier, the Medicaid population of children using psychotropic medications increased, in absolute numbers, by 10 percent, between 2005 and 2008. However, total Medicaid expense for use of such medications in children grew by 38 percent, during the same time interval, suggesting increased pharmacy expense per pill for psychotropic medications. The greater rise in total mean expense per child is consistent with the increased rates of concurrent medication use in individual children discussed above.

The 84 percent increase in mean expense overall for psychotropic medications was primarily driven by the 28 percent and 23 percent increases, respectively, in the mean expense for antipsychotics and ADHD medications between 2005 and 2008, with the bulk of that expense generated by antipsychotics (representing nearly three times the mean expense for ADHD medications). All other medication types saw a decrease in total mean expense, including antidepressants. Changes in antidepressant expense between the two years is likely due to a combination of reduced prescription rate, secondary to the FDA's "black box" warning, and the fact that some medications became available in generic form in 2008 that were brand-name only in 2005.

The previously noted increase in use of antipsychotics by children in foster care explains the disproportionate mean expense for antipsychotics in that aid category, as well as their outlier status in total mean expense per child among psychotropic medications overall.

As noted by the GAO report, this usage does not conform to clinical expectations. If the across-the-board increased expense for antipsychotics between 2005 and 2008 was driven by anything but drug price, it would be hard to understand, since there is no evidence of a change in prevalence of the diagnosis of psychosis.

Age and Medication Type

Appendix Exhibit N compares mean psychotropic medication expense, by drug type and age group, across the two study years.

Increases in psychotropic medication expense were dominated by changes in antipsychotic use. Comparison of mean expense for antipsychotic medications for each year by age-group showed increases in expense for every age category. The comparison particularly highlights the surge in antipsychotic expense for young children (0-5) whose proportion of total mean expense among children receiving antipsychotic medications increased from 57 percent in 2005, to 61 percent in 2008. In addition to this relative increase, compared to other age-groups, mean expense for

antipsychotic use among these preschool-aged children was 36 percent greater in 2008 in absolute terms than it was in 2005.

Conversely, expense for mood stabilizers/lithium showed the greatest decline ($88/child) among the 0-5 age group, and the least decline ($29/child) among those in the 6-12 age group. This may represent a reduced rate of initiation of mood stabilizers/lithium among the very young, between the two years, while also suggesting that, once such medications are prescribed, children tend to continue to receive them.

Mean expense for antidepressants also declined, with the biggest drop ($95/child) occurring among adolescents, likely related to decreased use amid FDA concerns regarding suicide risk (see **Appendix Exhibit M**). Anxiety medication mean expense per child decreased overall, but increased slightly for children 0-5 ($2/child); the largest decline was for adolescents, where expense dropped by $12 per child.

Costs Associated with Antipsychotic Medications

Overall, psychotropic medication expense, in both study years, is driven by use of antipsychotics, the most expensive drug category. The increase in total mean psychotropic medication expense, from $650 (2005) to $1,195 (2008), is almost entirely accounted for by the corresponding increase in antipsychotic medication expense. Misuse of antipsychotics remains a concern, given the fact that psychosis is a rare condition; overuse has also loomed large, as serious medical side-effects from these drugs have now been identified. New research is taking place to examine the role of pharmaceutical marketing and profit strategies in building up greater prescribing rates for “off label” or non-FDA approved usage.

Summary

This analysis to revisit and update trends in Medicaid claims data, comparing 2008 to 2005 to identify persistent themes has resulted in clearer understanding about what the relevant policy findings are. These include:

1. **Quality monitoring and utilization tracking reports need to be informed by evolving clinical research to encourage optimal service delivery patterns.** During a period of time between the two study years, when the research on combined mental health treatments (either traditional therapy, or care management and family support, in addition to medication) repeatedly showed superior outcomes compared to use of psychotropic medication alone, the trends in treatment for children within Medicaid went in the opposite direction.

2. **It is urgent to address the quality chasm between clinical guidelines and practice, as revealed by pharmacy utilization trends**. Utilization data appear to indicate both misuse and overuse of psychotropic medications, including a troubling gap between rates of psychiatric diagnoses, according to epidemiologic studies of children in the United States and confirmed by the results found in this analysis, and rates of psychotropic medication use by drug type. This gap is made more troubling by the associated higher pricing accompanying expanded usage of what should be infrequently needed drugs.

3. **Research needed to identify the long-term effects of psychotropic medications on children and youth**. It is critically important that the children who received so many medications at so young an age be followed by their primary care doctors, and that further research is done to ascertain any risks from long-term use of these drugs, especially given systemic inertia among health care providers toward discontinuing medications once they have been started.

Families, youth, prescribers and policymakers want to be certain that, at least for most children, those who adhere to taking their psychotropic medications as prescribed, will have the chance to be more, not less, healthy than if they had not taken their medicine.

ABOUT THE CENTER FOR HEALTH CARE STRATEGIES

The Center for Health Care Strategies (CHCS) is a nonprofit policy center dedicated to improving the health of low-income Americans. It works with state and federal agencies, health plans, providers, and community-based organizations to develop innovative programs that better serve people with complex and high-cost health care needs. For more information, visit **www.chcs.org**.

ADDITIONAL CHILDREN'S HEALTH RESOURCES

Since 2000, CHCS has shed light on the complex needs of Medicaid's most challenging populations through its series of *Faces of Medicaid* data analyses. To explore CHCS' full portfolio of analyses related to children with complex health care needs, visit the Children's Health topic page **www.chcs.org/topics/children/**.

REFERENCES

S. Pires, K. Grimes, T. Gilmer, K. Allen, and R. Mahadevan. "Examining Children's Behavioral Health Service Utilization and Expenditures." Center for Health Care Strategies. December 2013. Available at: www.chcs.org/resource/examining-childrens-behavioral-health-service-utilization-andexpenditures-3/.

Council on Children with Disabilities. "Policy Statement—Supplemental Security Income (SSI) for Children and Youth with Disabilities." *Pediatrics,* 124 (2009): 1702-2018. Available at: http://pediatrics.aappublications.org/content/pediatrics/124/6/1702.full.pdf.

R. A. Friedman. "Antidepressants' Black-Box Warning — 10 Years Later." *New England Journal of Medicine,* 371 (2014): 1666-1668. Available at: http://www.nejm.org/doi/full/10.1056/NEJMp1408480.

Foster Children: HHS Guidance Could Help States Improve Oversight of Psychotropic Prescriptions. United States Government Accountability Office, December 2011. Available at: http://www.gao.gov/assets/590/586906.pdf.

B.S. Molina, S.P. Hinshaw, J.M. Swanson, L.E. Arnold, B. Vitiello, P.S. Jensen, et al.. "The MTA at 8 Years: Prospective Follow-up of Children Treated for Combined-Type ADHD in a Multisite Study." *Journal of the American Academy of Child and Adolescent Psychiatry*, 48(5) (2009): 484–500. Available at: https://www.ncbi.nlm.nih.gov/pubmed/19318991.

J.S. March, S. Silva, S. Petrycki, J. Curry, K. Wells, J. Fairbank, et al. "Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents with Depression Study (TADS) randomized controlled trial." *JAMA*, 292(7) (2004): 807-820. Available at: https://jamanetwork.com/journals/jama/fullarticle/199274.

Appendix: Source Exhibits

Exhibit A. Demographic and Aid Characteristics of the Medicaid Child Population, 2005/2008

Demographic and Aid Characteristics	2005		2008	
	%	N	%	N
Age				
0-5 years	41.3%	12,001,451	46.3%	14,128,316
6-12 years	34.0%	9,889,507	31.3%	9,559,021
13-18 years	24.6%	7,159,347	22.3%	6,816,277
Gender				
Female	48.9%	14,202,259	48.7%	14,860,326
Male	51.0%	14,816,976	51.0%	15,549,420
Unknown	N/A	N/A	0.3%	93,868
Race and Ethnicity				
White	38.8%	11,271,574	36.8%	11,210,800
Black or African American	25.9%	7,537,925	24.9%	7,586,425
American Indian or Alaska Native	1.5%	448,234	1.5%	455,040
Asian	2.2%	644,744	2.2%	678,467
Hispanic or Latino	22.1%	6,413,067	22.7%	6,932,396
Native Hawaiian or Pacific Islander	0.6%	185,598	0.7%	205,304
Hispanic or Latino + one or more races	2.9%	846,083	4.0%	1,231,961
More than one race	0.3%	74,093	0.4%	109,000
Unknown	5.6%	1,628,987	6.9%	2,094,221
Aid Category				
TANF	92.3%	26,812,742	91.6%	27,947,758
Foster care	3.2%	919,590	3.3%	1,005,542
SSI/disabled*	4.5%	1,317,973	5.1%	1,550,314
Total Population	**100%**	**29,050,305**	**100%**	**30,503,614**

**Children are determined to be disabled based on SSI or state criteria (includes physical and/or mental health disabilities).*

Exhibit B. Penetration Rates for Use of Child Behavioral Health Care in Medicaid, 2005/2008

	2005		2008	
	N	Penetration Rate	N	Penetration Rate
Populations of Medicaid-Enrolled Children	**29,050,305**	**100%**	**30,503,614**	**100%**
Total number of children receiving any category of behavioral health care	**2,787,919 (100%)**	**9.6%**	**3,002,796 (100%)**	**9.8%**
Recipients of behavioral health services (with or without psychotropic meds)	1,958,908 (70.3%)	6.7%	2,059,282 (68.6%)	6.8%
Recipients of behavioral health therapy services without psychotropic med use	1,101,532 (39.5%)	3.8%	1,159,062 (38.6%)	3.5%
All children receiving psychotropic meds *(with or without behavioral health therapy)*	**1,686,387 (60.4%)**	**5.8%**	**1,843,734 (61.4%)**	**6.0%**
Recipients of psychotropic meds with behavioral health therapy	857,376 (30.7%)	2.9%	900,220 (30.0%)	3.0%
Recipients of psychotropic meds without behavioral health therapy	490,360 (17.6%)	1.7%	536,953 (17.9%)	1.8%
Recipients of psychotropic meds with indeterminate other service use **	338,651 (12.1%)	1.2%	406,921 (13.6%)	1.3%

*** Cannot determine based on claims whether behavioral or physical health service.*

Exhibit C. Distribution of Psychiatric Diagnoses among Children with Psychotropic Medications

Exhibit C1. Types of Psychotropic Medications Used by Children in Medicaid, by Psychiatric Diagnosis, 2005

Med Type	ADHD	Conduct Disorder	Mood	Anxiety	DD	Psychosis	Other Diagnosis	No diagnosis
ADHD Meds	467,811 (90.5%)	114,116 (48.4%)	72,540 (49.8%)	94,529 (64.2%)	23,287 (58.1%)	17,359 (43.4%)	6,067 (57%)	50,786 (49.4%)
Anti-depressants	161,087 (31.2%)	148,656 (63.1%)	97,278 (66.8%)	65,432 (44.4%)	17,236 (43%)	20,846 (52.2%)	5,717 (53.7%)	50,814 (49.4%)
Antipsychotics	182,846 (35.4%)	145,689 (61.8%)	65,416 (44.9%)	80,450 (54.6%)	26,649 (66.5%)	32,603 (81.6%)	5,932 (55.7%)	29,282 (28.5%)
Mood Stabilizers	47,428 (9.2%)	55,397 (23.5%)	17,618 (12.1%)	24,574 (15.7%)	5,838 (14.6%)	8,755 (21.9%)	1,509 (14.2%)	8,242 (8.0%)
Anxiety Meds	11,339 (2.2%)	11,877 (5.0%)	10,691 (7.3%)	5,852 (4.0%)	3,484 (8.7%)	2,679 (6.7%)	636 (6.0%)	6,558 (6.4%)
Lithium*	11,390 (2.2%)	19,048 (8.1%)	5,348 (3.7%)	6,637 (4.5%)	1,590 (4.0%)	3,492 (8.7%)	606 (5.7%)	1,331 (1.3%)
Total N	**517,125 (100%)**	**235,679 (100%)**	**145,704 (100%)**	**147,227 (100%)**	**40,103 (100%)**	**39,956 (100%)**	**10,641 (100%)**	**102,876 (100%)**

**For 2008 analyses, lithium prescriptions are reported in the Mood Stabilizer category.*

Exhibit C2. Types of Psychotropic Medications Used by Children in Medicaid, by Psychiatric Diagnosis, 2008

Med Type	ADHD	Conduct Disorder	Mood	Anxiety	PTSD**	DD	Psychosis	Other Diagnosis	No diagnosis
ADHD Meds	895,610 (92.8%)	246,886 (68.0%)	208,715 (47.9%)	99,270 (46.4%)	34,665 (51.2%)	44,521 (52.8%)	17,534 (36.3%)	34,689 (59.8%)	221,000 (48.7%)
Anti-depressants	202,150 (21.0%)	137,344 (37.9%)	256,486 (58.9%)	133,742 (62.5%)	41,187 (60.8%)	31,215 (37.0%)	25,033 (51.8%)	27,144 (46.8%)	130,626 (28.8%)
Antipsychotics	255,704 (26.5%)	178,314 (49.1%)	237,772 (54.6%)	81,986 (38.3%)	39,969 (59.0%)	53,775 (63.8%)	41,116 (85.1%)	33,272 (57.3%)	69,709 (15.4%)
Mood Stabilizers*	83,382 (8.6%)	64,710 (17.8%)	107,330 (24.6%)	32,452 (15.2%)	15,242 (22.5%)	20,149 (23.9%)	16,387 (33.9%)	14,295 (24.6%)	82,581 (18.2%)
Anxiety Meds	18,556 (1.9%)	14,098 (3.9%)	27,252 (6.3%)	25,790 (12.0%)	4,491 (6.6%)	8,064 (9.6%)	4,693 (9.7%)	4,315 (7.4%)	61,982 (13.7%)
Total N	**964,691 (100%)**	**362,853 (100%)**	**435,629 (100%)**	**214,100 (100%)**	**67,733 (100%)**	**84,347 (100%)**	**48,294 (100%)**	**58,040 (100%)**	**453,655 (100%)**

**For 2008 analyses, lithium prescriptions are reported in the Mood Stabilizer category*

*** For 2008, PTSD was analyzed as an independent diagnostic category.*

Exhibit D. Characteristics of Children Prescribed Psychotropic Medications vs. Medicaid Overall, 2005/2008

	2005				2008			
Characteristics	**All Children In Medicaid (29,050,305)**		**Children Prescribed Psychotropic Meds (1,686,387)**		**All Children In Medicaid (30,503,614)**		**Children Prescribed Psychotropic Meds (1,843,734)**	
Age	N	%	N	%	N	%	N	%
0-5 years	12,001,451	41.3%	77,812	4.6%	14,128,316	46.3%	163,655	8.9%
6-12 years	9,889,507	34.0%	850,535	50.4%	9,559,021	31.3%	936,141	50.8%
13-18 years	7,159,347	24.6%	758,040	45.0%	6,816,277	22.3%	743,938	40.3%
Gender								
Female	14,202,259	48.9%	588,393	34.9%	14,860,326	48.7%	659,931	35.8%
Male	14,816,976	51.0%	1,097,859	65.1%	15,549,420	51.0%	1,183,740	64.2%
Race/Ethnicity								
White	11,271,574	38.8%	1,025,518	60.8%	11,210,800	36.8%	1,060,356	57.5%
Black or African American	7,537,925	25.9%	348,591	20.7%	7,586,425	24.9%	377,418	20.5%
American Indian or Alaska Native	448,234	1.5%	21,636	1.3%	455,040	1.5%	24,943	1.4%
Asian	644,744	2.2%	6,624	0.4%	678,467	2.2%	8,450	0.5%
Hispanic or Latino	6,413,067	22.1%	137,559	8.2%	6,932,396	22.7%	171,665	9.3%
Native Hawaiian or Pacific Islander	185,598	0.6%	3,156	0.2%	205,304	0.7%	3,110	0.2%
Hispanic or Latino + one or more races	846,083	2.9%	23,151	1.4%	1,231,961	4.0%	38,720	2.1%
More than one race	74,093	0.3%	3,966	0.2%	109,000	0.4%	7,141	0.4%
Unknown	1,628,987	5.6%	116,186	6.9%	2,094,221	6.9%	151,931	8.2%
Aid Category								
TANF	26,812,742	92.3%	1,119,266	66.4%	27,947,758	91.6%	1,170,756	63.5%
Foster Care	919,590	3.2%	212,176	12.6%	1,005,542	3.3%	230,453	12.5%
SSI/Disabled*	1,317,973	4.5%	354,945	21.0%	1,550,314	5.1%	442,525	24%

**Children are determined to be disabled based on SSI or state criteria; includes physical health and/or mental health disabilities.*

Exhibit E. Characteristics and Behavioral Health Service Use Patterns for Children Prescribed Psychotropic Medications, 2005/2008

	2005		2008	
	Medicaid Children Receiving Psychotropic Meds		Medicaid Children Receiving Psychotropic Meds	
Demographic and Aid Categories	**With Behavioral Health Service Use 857,376 (50.8%)**	**Without Behavioral Health Service Use 829,011 (49.2%)**	**With Behavioral Health Service Use 900,220 (48.8%)**	**Without Behavioral Health Service Use 943,874 (51.2%)**
Age				
0-5 years	32,358 (42%)	45,454 (58%)	69,820 (43%)	93,835 (57%)
6-12 years	409,128 (48%)	441,407 (52%)	437,645 (47%)	498,496 (53%)
13-18 years	415,890 (55%)	342,150 (45%)	392,755 (53%)	351,182 (47%)
Gender				
Female	294,071 (50%)	294,322 (50%)	316,351 (48%)	343,580 (52%)
Male	563,237 (51%)	534,622 (49%)	583,856 (49%)	599,884 (51%)
Race/Ethnicity				
White	498,279 (49%)	527,239 (51%)	500,148 (47%)	560,208 (53%)
Black or African American	189,739 (54%	158,852 (46%)	206,374 (55%)	171,044 (45%)
American Indian or Alaska Native	11,163 (52%)	10,473 (48%)	13,369 (54%)	11,574 (46%)
Asian	3,033 (46%)	3,591 (54%)	3,126 (37%)	5,324 (63%)
Hispanic or Latino	75,372 (55%)	62,187 (45%)	75,519 (44%)	96,146 (56%)
Native Hawaiian or Pacific Islander	1,632 (52%)	1,524 (48%)	950 (31%)	2,160 (69%)
Hispanic or Latino + one or more races	14,627 (63%)	8,524 (37%)	23,097 (60%)	15,623 (40%)
More than one Race	2,277 (57%)	1,689 (43%)	4,387 (61%)	2,754 (39%)
Unknown	61,254 (63%)	36,209 (37%)	73,250 (48%)	78,681 (52%)
Aid Category				
TANF	499,595 (45%)	619,671 (55%)	517,557 (44%)	653,199 (56%)
Foster Care	144,745 (68%)	67,431 (32%)	144,732 (63%)	85,721 (37%)
SSI/Disabled*	213,036 (60%)	141,909 (30%)	237,931 (54%)	204,594 (46%)
Total N	857,376 (51%)	829,011 (49%)	900,220 (49%)	943,514 (51%)

**Children are determined to be disabled based on SSI or state criteria, including both physical and/or mental health disabilities.*

Exhibit F. Distribution of Psychotropic Medication Use among Children in Medicaid, by Age and Drug Type, 2005/2008

	2005				2008			
Med Type	**Overall**	**Age 0-5**	**Age 6-12**	**Age 13-18**	**Overall**	**Age 0-5**	**Age 6-12**	**Age 13-18**
ADHD Meds	1,169,369 (69.3%)	50,133 (64.4%)	714,673 (84.0%)	404,563 (53.4%)	1,232,032 (66.8%)	113,075 (69.1%)	764,129 (81.6%)	354,828 (47.7%)
Anti-depressants	584,652 (34.7%)	11,711 (15.1%)	189,503 (22.3%)	383,438 (50.6%)	583,389 (31.6%)	19,501 (11.9%)	200,021 (21.4%)	363,867 (48.9%)
Antipsychotics	442,985 (26.3%)	17,633 (22.7%)	191,115 (22.5%)	234,237 (30.9%)	524,884 (28.5%)	36,141 (22.1%)	235,176 (25.1%)	253,567 (34.1%)
Mood Stabilizers	136,732 (8.1%)	4,827 (6.2%)	48,994 (5.8%)	82,911 (10.9%)	252,065 (13.7%)	20,346 (12.4%)	94,154 (10.1%)	137,565 (18.5%)
Anxiety Meds	101,114 (6.0%)	12,481 (16.0%)	33,392 (3.9%)	55,241 (7.3%)	120,991 (6.6%)	16,683 (10.2%)	34,325 (3.7%)	69,983 (9.4%)
Lithium**	30,786 (1.8%)	261 (0.3%)	8,876 (1.0%)	21,649 (2.9%)	N/A	N/A	N/A	N/A
Total N *	**1,686,317**	**77,812**	**850,535**	**758,040**	**1,843,734**	**163,655**	**936,141**	**743,938**

**Columns do not sum to 100% since children may receive more than one medication type.*

***For 2008 analyses, lithium prescriptions are reported in the Mood Stabilizer category.*

Exhibit G. Distribution of Psychotropic Medication Use among Children, by Aid Category and Drug Type, 2005/2008

	2005				2008			
Med Type	**Overall**	**TANF**	**Foster Care**	**SSI/ Disabled**	**Overall**	**TANF**	**Foster Care**	**SSI/ Disabled**
ADHD Meds	1,169,369 (69.3%)	788,516 (70.4%)	144,335 (68.0%)	236,518 (66.6%)	1,232,032 (66.8%)	805,920 (68.8%)	158,046 (68.6%)	268,066 (60.6%)
Anti-depressants	584,652 (34.7%)	370,618 (33.1%)	92,196 (43.5%)	121,838 (34.3%)	583,389 (31.6%)	359,075 (30.7%)	89,200 (38.7%)	135,114 (30.5%)
Antipsychotics	442,985 (26.3%)	203,092 (18.1%)	89,423 (42.1%)	150,470 (42.4%)	524,884 (28.5%)	233,520 (19.9%)	102,052 (44.3%)	189,312 (42.8%)
Mood Stabilizers	136,732 (8.1%)	65,506 (5.9%)	25,743 (12.1%)	45,483 (12.8%)	252,065 (13.7%)	109,933 (8.8%)	103,329 (16.8%)	38,803 (24.8%)
Anxiety Meds	101,114 (6.0%)	62,068 (5.5%)	7,521 (3.5%)	31,525 (8.9%)	120,991 (6.6%)	40,671 (6.1%)	71,482 (3.8%)	8,838 (9.2%)
Lithium**	30,786 (1.8%)	12,074 (1.1%)	7,321 (3.5%)	11,391 (3.2%)	N/A	N/A	N/A	N/A
Total N *	**1,686,317**	**1,119,266**	**212,176**	**354,945**	**1,843,734**	**1,170,756**	**230,453**	**442,525**

**Columns do not sum to 100% since children may receive more than one medication type.*

***For 2008, lithium prescriptions are reported in the Mood Stabilizer category.*

Exhibit H. Number of Concurrent Psychotropic Medications among Children in Medicaid, by Age and Overall, 2005/2008

	Age 0-5		Age 6-12		Age 13-18		Overall	
Number of Meds	**2005**	**2008**	**2005**	**2008**	**2005**	**2008**	**2005**	**2008**
One	62,365 (80.1%)	129,577 (79.2%)	605,722 (71.2%)	649,540 (69.4%)	461,829 (60.9%)	439,615 (59.1%)	1,129,916 (67.0%)	1,218,732 (66.1%)
Two	12,157 (15.6%)	26,992 (16.5%)	169,763 (20.0%)	198,617 (21.2%)	194,076 (25.6%)	197,117 (26.5%)	375,996 (22.3%)	422,726 (22.9%)
Three	2,839 (3.6%)	6,194 (3.8%)	60,563 (7.1%)	71,839 (7.7%)	79,400 (10.5%)	84,528 (11.4%)	142,802 (8.5%)	162,561 (8.8%)
Four or more	451 (0.6%)	892 (0.5%)	14,487 (1.7%)	16,145 (1.7%)	22,735 (3.0%)	22,678 (3.0%)	33,283 (2.2%)	39,715 (2.1%)
Total N	77,812	163,655	850,535	936,141	758,040	743,938	1,686,387	1,843,784

Exhibit I. Number of Concurrent Psychotropic Medication Types among Children in Medicaid, by Aid Category, 2005/2008

	TANF		Foster Care		SSI/Disabled	
Number of Meds Categories Prescribed in the Same Episode of Care	**2005**	**2008**	**2005**	**2008**	**2005**	**2008**
One Med Type	830,752 (74.2%)	865,291 (73.9%)	108,883 (51.3%)	117,630 (51%)	190,281 (53.6%)	235,811 (53.3%)
Two Med Types	210,210 (18.8%)	223,108 (19.1%)	62,790 (29.6%)	69,056 (30%)	102,996 (29.0%)	130,562 (29.5%)
Three Med Types	64,043 (5.7%)	68,453 (5.8%)	31,146 (14.7%)	34,401 (14.9%)	47,613 (13.4%)	58,707 (13.5%)
Four or more Med Types	14,261 (1.3%)	13,904 (1.2%)	9,357 (4.4%)	9,366 (4.1%)	14,055 (4.0%)	16,445 (3.7%)
Total N	1,119,266	1,170,756	212,176	230,453	354,945	442,525

Exhibit J. Number of Concurrent Psychotropic Medications by Race/Ethnicity of Children in 2008

Concurrent Med Counts and % within Race/Ethnicity	**Asian**	**Hispanic or Latino**	**Native Hawaiian/ Pacific Islander**	**Black/ African American**	**Hispanic/ Latino + one/more races**	**American Indian/ Alaska Native**	**White**	**More than one race**	**Unknown**	**Total**
Children with One Drug type	6,228 (.5%)	121,844 (10%)	2,192 (.17%)	260,127 (21%)	26,107 (2%)	16,700 (1%)	689,046 (57%)	4,579 (.3%)	91,909 (.08%)	**1,218,732** (100%)
Percent within R/E Category	73.7%	71%	70.5%	68.9%	67.4%	67%	65%	64.1%	60.5%	
Children with Two or more Drug Types	2,222 (.3%)	49,821 (8%)	918 (.1%)	117,291 (19%)	12,613 (2%)	8243 (1%)	371,310 (59%)	5423 (.9%)	60,022 (10%)	**625,002** (100%)
Percent within R/E Category	26.3%	29%	29.5%	31%	32.6%	33%	35%	35.9%	39.5%	
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	**1,843,734 (100%)**

Exhibit K. Number of Concurrent Psychotropic Medications among Children with Physical Health Services Only, 2005/2008

Number of Drug Types Concurrently Prescribed	Number and Percent of Children in 2005	Number and Percent of Children in 2008
One	394,794 (80.5%)	422,647 (78.8%)
Two	71,516 (14.6%)	86,439 (16.1%)
Three	19,783 (4%)	23,215 (4.3%)
Four or more	4,267 (0.9%)	4,292 (0.8%)
Total Children	**490,360**	**536,593**

Exhibit L. Total and Mean Expense for Psychotropic Medications for Children in Medicaid, by Aid Category, 2005/2008

	2005				2008			
Aid Category	**% of Total Medicaid Child Population**	**Children Using Psychotropic Meds by Aid Category**	**Total Psych Med Expense**	**Mean Psych Med Expense per Child**	**% of Total Medicaid Child Population**	**Children Using Psychotropic Meds by Aid Category**	**Total Psych Med Expense**	**Mean Psych Med Expense per Child**
TANF	92.3%	1,119,266 (66.4%)	$713.4M (44.6%)	$475	91.6%	1,170,756 (63.5%)	$887.3M (40.3%)	$758
Foster Care	3.2%	212,176 (12.6%)	$342.2M (21.4%)	$934	3.3%	230,453 (12.5%)	$469.9M (21.3%)	$2039
SSI/ Disabled	4.5%	354,945 (21.0%)	$547.2M (34.2%)	$916	5.1%	442,525 (24%)	$845.4M (38.4%)	$1910
Total	**29,050,305**	**1,686,387 (100%)**	**$1.6B (100%)**	**$650**	**30,503,614**	**1,843,784 (100%)**	**$2.2B (100%)**	**$1195**

Exhibit M. Mean Pharmacy Expense per Child, by Psychotropic Medication Type and Aid Category, 2005/2008

	2005				2008			
Med Type	**Mean Expense per Drug**	**TANF**	**Foster Care**	**SSI/ Disabled**	**Mean Expense per Drug**	**TANF**	**Foster Care**	**SSI/ Disabled**
Antipsychotics	$1,516	$1,045	$1,955	$1,891	$1,941	$1,325	$2,524	$2,387
Mood Stabilizers/Lithium	$965	$613	$1026	$1,423	$901	$584	$946	$1,183
ADHD Meds	$568	$499	$762	$683	$699	$591	$970	$866
Anti-depressants	$247	$194	$363	$317	$155	$112	$245	$208
Anxiety Meds	$49	$22	$73	$97	$41	$19	$55	$76
Total Mean Expense*	**$650**	**$475**	**$934**	**$916**	**$1195**	**$758**	**$2,039**	**$1,910**

** For children/youth receiving psychotropic medications in 2005, N = 1,686,387; in 2008, N = 1,843,784.*

Exhibit N. Mean Expense per Child for Psychotropic Medications by Age and Medication Type, 2005/2008

	2005				2008			
Med Type	**Mean Expense for 2005**	**Age 0-5**	**Age 6-12**	**Age 13-18**	**Mean Expense for 2008**	**Age 0-5**	**Age 6-12**	**Age 13-18**
Antipsychotics	$1,516	$867	$1,437	$1,630	$1,941	$1,175	$1,875	$2,112
Mood Stabilizers/ Lithium	$965	$855	$932	$983	$901	$767	$903	$919
ADHD Meds	$568	$332	$571	$594	$699	$477	$714	$738
Anti-depressants	$247	$102	$205	$272	$155	$66	$123	$177
Anxiety Meds	$49	$35	$49	$52	$41	$37	$44	$40
Total Mean*	**$650**	**$386**	**$644**	**$678**	**$1195**	**$696**	**$1,173**	**$1,332**

**Total Number of children/youth receiving psychotropic medications = 1,686,387 in 2005, and 1,843,784 in 2008.*