

PSYCHOTROPIC MEDICATION USE BY PENNSYLVANIA CHILDREN IN FOSTER CARE AND ENROLLED IN MEDICAID: *AN ANALYSIS OF CHILDREN AGES 3-18 YEARS*



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IN COLLABORATION WITH THE COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF HUMAN SERVICES

WITH THE SUPPORT OF CASEY FAMILY PROGRAMS





COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HUMAN SERVICES

April 22, 2015

Dear Stakeholder:

Children in foster care can face some significant challenges and we believe that it is the responsibility of all of us to help them successfully make the transition to adulthood. The Department of Human Services (DHS) is committed to helping all Pennsylvania children receive the care that they need.

At both the state and federal levels, the use of psychotropic medication among the foster care population has increasingly garnered critical attention over the past decade. As a result, DHS and the Administrative Office of Pennsylvania Courts convened workgroups to conduct research, review current policies and procedures, and develop recommendations.

In 2012, DHS began working with PolicyLab, a research center at The Children's Hospital of Philadelphia, to conduct an in-depth data analysis to identify trends and areas needing improvement. The research focused on the use of psychotropic medications, polypharmacy, off-label psychotropic medication, and behavioral health services by children and youth enrolled in Medicaid, with a particular focus on those who are in foster care.

Based on the emerging themes identified from PolicyLab's research and analysis, DHS concurrently convened a Health Care Workgroup of cross-discipline experts to review the practical implications of these trends and to develop recommendations to address root causes. After many hours of collaborative work by dedicated stakeholders, the brief that follows outlines specific findings and includes recommendations from the Health Care Workgroup to be used as a roadmap to address the findings.

This brief, and accompanying recommendations, provides cross-system partners the opportunity to have a better understanding of the issues surrounding the use of psychotropic medications and provides suggestions to address the findings, which include individual evaluations and monitoring, consent and ongoing communication, the use of mental health experts or consultations for health care professions, and information sharing and educational materials.

I would like to recognize and thank PolicyLab for the critically important work of this brief, the members of the Health Care Workgroup for developing recommendations to improve this area in Pennsylvania, and Casey Family Programs. Additionally, I would like to thank DHS's Office of Children, Youth and Families, the Office of Mental Health and Substance Abuse Services, and the Office of Medical Assistance Programs for their support and expertise throughout this process.

Sincerely,

A handwritten signature in black ink, appearing to read "Theodore Dallas".

Theodore Dallas
Acting Secretary

Enclosure

OFFICE OF THE SECRETARY

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Overview

At the request of the Commonwealth of Pennsylvania Department of Human Services (DHS), PolicyLab, a research center at The Children's Hospital of Philadelphia, analyzed trends in the use of psychotropic medications by Medicaid-enrolled children and adolescents in Pennsylvania, including those specifically in foster care. PolicyLab's analysis focused on the use of antipsychotics and polypharmacy among children and adolescents in the Commonwealth, given growing concerns about the safety and efficacy of psychotropic medications for these populations. PolicyLab examined these trends for children and adolescents ages 3-18 years, using state Medicaid data from 2007-2010 and 2012. During this period, the number of 3-18 year olds enrolled in Medicaid increased from 616,800 to 718,500. Among these Medicaid-enrolled 3-18 year olds, approximately 3.5%—or 18,400—were in foster care at some point in 2012.

Summary of Findings

School Age Youth 6-18 Years

- ▶ For youth ages 6-18 years old in 2012, the study found the use of psychotropic medications was nearly three times higher among youth in foster care than youth in Medicaid overall (43% versus 16%). The use of antipsychotics, a class of psychotropic medications, was four times higher among youth in foster care (22%) than youth in Medicaid overall (5%). More than half of youth antipsychotic users in Medicaid had a diagnosis of attention deficit hyperactivity disorder (ADHD). This is concerning, as the majority of these youth did not have another diagnosis that clinically indicated the use of antipsychotics, a medication class with significant side effects. Polypharmacy, the use of multiple classes of medications in combination, occurred at a rate four times higher for youth in foster care than all youth in Medicaid (12% versus 3%). While 90% of youth prescribed multiple psychotropic medications had at least one visit with a health or behavioral health provider for their behavioral health concerns within the year the medication was prescribed, notably, one in ten youth did not. Youth in foster care were more likely to have not received any visits with a provider for their behavioral health concerns within the year they were using psychotropic medications.

In addition to foster care status, other demographic characteristics also influenced psychotropic medication use. Males were more frequent users of psychotropic medications than females. White youth used psychotropic medications the most often, while Asian, American Indian, and Alaskan Native youth used psychotropic medications at the lowest rate. Youth ages 11 to 18 were higher utilizers than younger youth. For youth in foster care, psychotropic medication use among youth ages 11 to 14 years was higher than that of youth ages 15 to 18 years. In contrast, for youth in Medicaid overall, both age groups (11-14 and 15-18) had comparable rates of medication use.

Despite concerning findings regarding the high prevalence of psychotropic medication use, particularly among vulnerable youth in foster care, the analysis also revealed trends toward reduced medication rates over time. In 2012, psychotropic medication use, including antipsychotics, decreased compared with the four prior years of observation. The rate of polypharmacy was also lower in 2012. This does not mean there is no longer cause for concern, as rates remained high. Thus, trends should continue to be tracked and medication use overseen.

Young Children 3-5 Years

- ▶ Younger children had significantly lower rates of psychotropic medication and polypharmacy use than school age youth (ages 6-18). About three per 1000 children ages 3-5 in Medicaid, and six per 1000 children ages 3-5 in foster care, were on an antipsychotic in 2012. While these rates are much lower than for school age youth, any use among young children is concerning and requires further inquiry. The analysis revealed that young children's use of antipsychotics and polypharmacy began to decline earlier than the decline seen among older youth.

Recommendations

- ▶ Medicaid physical health Managed Care Organizations (MCOs), whose members include children and adolescents in foster care, should adopt the Pennsylvania Fee-For-Service (FFS) Medicaid system's prior-authorization requirements for all children and adolescents under 18, which Medicaid first implemented in 2008 and expanded to all children and adolescents under 18.
- ▶ DHS should expand investments in and reimbursements of non-pharmacological behavioral health interventions –leveraging resources through the federal Child Welfare Demonstration Project, through university collaborations (e.g., the Pennsylvania Parent Child Interaction Therapy (PCIT) Network), and through increased statewide access to evidence-based treatments for childhood trauma.
- ▶ DHS should broadly incorporate more robust psychotropic medication oversight policies and specifically, the protocols and policies related to psychotropic medications as required by federal law, which include: (1) screening and evaluation to identify mental health needs; (2) standards of consent and assent to treatment and ongoing communication; (3) medication monitoring; (4) availability of mental health expertise; and (5) mechanisms for sharing current information and education materials regarding the use of psychotropic medications. To ensure widespread distribution and aid implementation, these policies should be publicly accessible, and at minimum, available on the DHS website.
- ▶ DHS should ensure ongoing population level oversight and data collection to capture changes in health outcomes related to psychotropic medication use statewide, at the county level, and by each health plan. This data can help provide a baseline for DHS to set best practice targets related to psychotropic medication use for children and adolescents in Medicaid, and especially those in foster care.

This brief proceeds in four parts:

- ▶ Part I provides background on psychotropic medication use nationally and on federal policies related to psychotropic medications.
- ▶ Part II summarizes the study methods.
- ▶ Part III reports the findings for children and adolescents in foster care and enrolled on Medicaid in Pennsylvania. These findings are divided by age with separate sections for school age youth ages 6-18, and young children ages 3-5.
- ▶ Finally, Part IV discusses the findings and recommendations.

I. BACKGROUND

Over the past decade, concern about rising rates of psychotropic medications has become an issue of critical concern for policy-makers and advocates. A national study of state-level psychotropic medication rates over the period from 2002 to 2007 found that over these six years, 45 states experienced a relative increase in antipsychotic prescribing to youth, including Pennsylvania. Nationally, among all states, the median rate of antipsychotic use among youth in the Medicaid program was 13%.¹ Efforts are underway at state and federal Medicaid programs and child welfare agencies to better track and monitor the prescribing and use of psychotropic medications. For example, a consortium of 16 state Medicaid medical directors, including Pennsylvania's, spearheaded an effort to catalogue state activities in improving oversight of psychotropic medication.² Common strategies states have adopted to improve oversight include: (1) prior authorization for medications outside established prescribing parameters; (2) introduction of psychiatric consultative services; (3) retrospective reviews of psychotropic medication prescribing practices; and (4) roll-out of trainings on psychotropic medication prescribing and child trauma.^{3,4}

At the federal level, the *Fostering Connections to Success and Increasing Adoptions Act of 2008* required child welfare agencies to develop plans for “ongoing oversight and coordination of health care services for children in foster care.”⁵ This was further bolstered in 2011 with the *Child and Family Services Improvement and Innovation Act*, which required states to include information on “oversight of psychotropic medications” for children in foster care in state plans submitted to the federal government.⁶ These plans must specifically address the following components of a state’s child welfare system: (1) screening and evaluation to identify mental health needs; (2) standards of consent and assent to treatment and ongoing communication; (3) medication monitoring; (4) availability of mental health expertise; and (5) mechanisms for sharing current information and education materials regarding the use of psychotropic medications.⁷

In Pennsylvania, efforts are underway to develop new policies related to the prescribing and use of psychotropic medications for children and adolescents enrolled in Medicaid and specifically, for the subset of Medicaid enrollees in foster care. As a component of this work, in 2013 DHS asked PolicyLab to conduct an in-depth analysis examining Pennsylvania’s trends in the use of psychotropic medications by children and adolescents enrolled in Medicaid, with a particular focus on children and adolescents in foster care. This brief details the findings of that review.

II. METHODS

The aim of this study was to examine trends in the use of psychotropic medications in Pennsylvania’s Medicaid program from 2007 through 2012, with a specific focus on youth in foster care (Note: data from the year 2011 was not available and is not part of this review). The study looked at Pennsylvania children and adolescents ages 3-18 years.

This study was conducted with data from the Medicaid Statistical Information System (MSIS) from DHS. Child-level demographic, eligibility, encounter, and pharmacy data were extracted from MSIS files. Foster care was defined using Medicaid program eligibility status codes (which indicate the category by which a child is eligible for Medicaid, e.g., Social Security Insurance (SSI) or Temporary Aid for Needy Families (TANF)/other). The foster care definition included all children with the code “Federal Foster Care” or “State Foster Care” in the MSIS system.

The sample was restricted to children and adolescents ages 3-18 years with continuous Medicaid eligibility, defined as eligibility at least 10 of 12 months in a given calendar year. An examination of youth without this eligibility restriction is included in Appendix A.

The dependent variables in this study were the use of: a) any psychotropic medication; b) antipsychotic medications; and c) psychotropic polypharmacy, defined in two ways: as the concurrent use of two or three or more psychotropic medication classes during the year. Estimates were standardized by age, race, gender, and Medicaid eligibility status (foster care, SSI, or TANF/other). Polypharmacy estimates were also standardized by diagnosis of seizure disorder. (See *Figure 1 for an overview of key terms*)

For further information regarding: (1) variation in behavioral health measures among behavioral health managed care organizations; (2) the mental health diagnoses of children receiving polypharmacy; (3) psychotropic medication rates for other children involved in the child welfare system; and (4) an explanation of cohort eligibility for this study and drug classifications, please see the Appendices.

Figure 1

KEY TERMS:

Foster Care: Refers to children who have been removed from their home and who are receiving services through the child welfare system in an out-of-home placement. Children and adolescents in foster care were identified using Medicaid enrollment information specific to foster care status.

Psychotropic Medication: A drug that is used to treat or manage mental health symptoms or challenging behaviors.

Psychotropic Medication Class: A group of psychotropic medications that may work in a similar way or be used to treat the same condition (e.g., stimulants or antipsychotics).

Antipsychotic Medication: A class of psychotropic medications primarily used to manage psychosis, but increasingly prescribed to children to mitigate behavior problems. This analysis considered second-generation antipsychotics, which are the predominant family of antipsychotic medications prescribed to children.

2-Class Polypharmacy: Use of two classes of psychotropic medication (e.g., an antipsychotic and a mood stabilizer) for a duration of at least one month. For some children and adolescents with more than a single psychiatric disorder (e.g., bipolar disorder plus ADHD), the use of more than one class of psychotropic medication may be clinically necessary.

3+ Class Polypharmacy: Use of three or more classes of psychotropic medication for a duration of at least one month.

Off-label Psychotropic Medication: Psychotropic medication prescribed by a licensed medication prescriber for a condition or for a target population that has not been formally approved by the federal Food and Drug Administration (FDA).

Visit for a Behavioral Health Concern: An outpatient or inpatient Medicaid claim in which a behavioral health diagnosis was present as the primary or secondary diagnostic indication. Behavioral health diagnoses include: anxiety, attention deficit hyperactivity disorder, autism, bipolar, conduct disorder, depression, developmental delay, intellectual disability, schizophrenia, and miscellaneous/not otherwise specified behavioral conditions. These visits may have been by a physical health or behavioral health provider (i.e., psychiatrist, psychologist, primary care physician).

Fee-For-Service (FFS): A Medicaid provider reimbursement plan wherein each service is billed and paid for, as opposed to a fixed provider payment plan (managed care capitation).

III. KEY FINDINGS

A. THE USE OF PSYCHOTROPIC MEDICATIONS BY SCHOOL AGE YOUTH 6-18 YEARS IN PENNSYLVANIA

For youth ages 6-18 years old in 2012, the study found the use of psychotropic medications was nearly three times higher among youth in foster care than youth in Medicaid overall (43% versus 16%). The use of antipsychotics, a class of psychotropic medications, was four times higher among youth in foster care (22%) than youth in Medicaid overall (5%). More than half of youth antipsychotic users in Medicaid had a diagnosis of attention deficit hyperactivity disorder (ADHD). This is concerning as the majority of these youth did not have another diagnosis that clinically indicated the use of antipsychotics, a medication with significant side effects. Polypharmacy, the use of multiple classes of medications in combination, occurred at a rate four times higher for youth in foster care than all youth in Medicaid (12% versus 3%). While 90% of youth prescribed multiple psychotropic medications had at least one visit with a health or behavioral health provider for their behavioral health concerns within the year the medication was prescribed, notably, one in ten youth did not. Youth in foster care were more likely to have not received any visits with a provider for their behavioral health concerns within the year they were using psychotropic medications.

In addition to foster care status, other demographic characteristics also influenced psychotropic medication use. Males were more frequent users of psychotropic medications than females. White youth used psychotropic medications the most often, while Asian, American Indian, and Alaskan Native youth used psychotropic medications at the lowest rate. Youth ages 11 to 18 were higher utilizers than younger youth. For youth in foster care, psychotropic medication use among youth ages 11 to 14 years was higher than that of youth ages 15 to 18 years. In contrast, for youth in Medicaid overall both age groups (11-14 and 15-18) had comparable rates of medication use.

Despite concerning findings regarding the high prevalence of psychotropic medication use, particularly among vulnerable youth in foster care, the analysis also revealed trends toward reduced medication rates over time. In 2012, psychotropic medication use, including antipsychotics, was lower compared with the four prior years of observation. The rate of polypharmacy was also lower in 2012. This does not mean there is no longer cause for concern, as rates remained high. Thus, trends should continue to be tracked and medication use overseen.

1 Psychotropic Medication Use Generally

In 2012, nearly 424 per 1000 6-18 year old youth in foster care were using a psychotropic medication as compared to 161 per 1000 youth in the overall Medicaid population. Psychotropic medications include medications from seven primary classes of medication, including alpha agonists, anxiolytics, antidepressants, mood stabilizers, antipsychotics, stimulants, and sedatives/hypnotics.

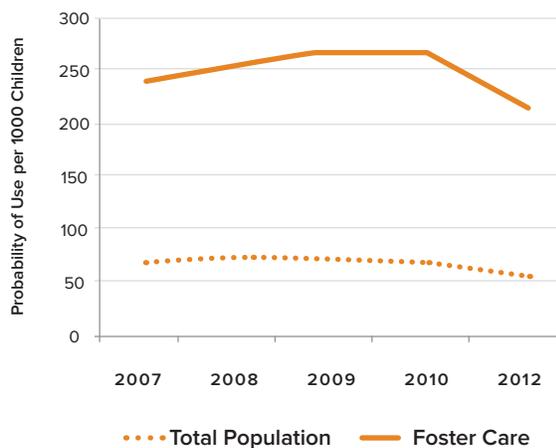
2 Antipsychotic Medication Use (See Figure 2)

Antipsychotics are a class of psychotropic medications primarily used to manage psychosis, but increasingly prescribed to children to address behavior problems.⁸ While data supports the use of antipsychotic medication for aggressive behaviors associated with several behavioral health diagnoses, there is little efficacy data to support use for more routine behavior problems in the absence of aggression. Given that antipsychotics are associated with serious adverse events in children and adolescents, including weight gain and diabetes,^{9,10} the use of antipsychotic medication should always be the result of careful consideration and be subject to ongoing monitoring over time.

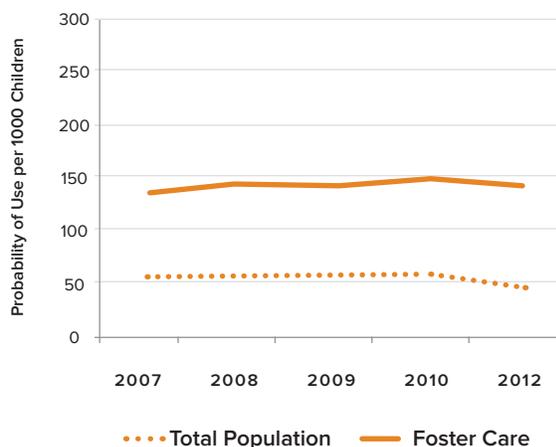
- ▶ **Antipsychotic use is four times higher for youth in foster care:** In 2012, roughly 52 per 1000 (5%) Medicaid-enrolled youth used antipsychotics, including 216 per 1000 (22%) youth in foster care.
- ▶ **Declining antipsychotic use trends are delayed for youth in foster care:** The rate of antipsychotic use of 52 per 1000 in 2012 represented a yearly decline in use in the overall Medicaid population that started in 2008. In contrast, youth in foster care experienced their first decline in use in 2012, following a trend of increase that reached a high of 270 per 1000 in 2010.
- ▶ **Risperidone was the most commonly prescribed antipsychotic:** For Medicaid-enrolled youth overall, Risperidone was the most frequently prescribed specific antipsychotic medication. For youth in foster care, Abilify and Seroquel grew to exceed Risperidone over the study period—however, use of Seroquel experienced a sharp decline from 2010 to 2012 (46% reduction). Zyprexa was the least commonly used antipsychotic medication among all youth.

Figure 2

Antipsychotic Medication Use among PA Medicaid-enrolled Youth Ages 6-18 Years



2-Class Polypharmacy Use among PA Medicaid-enrolled Youth Ages 6-18 Years



3+Class Polypharmacy Use among PA Medicaid-enrolled Youth Ages 6-18 Years

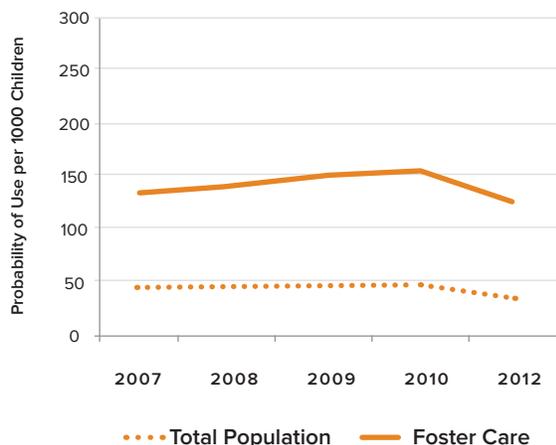
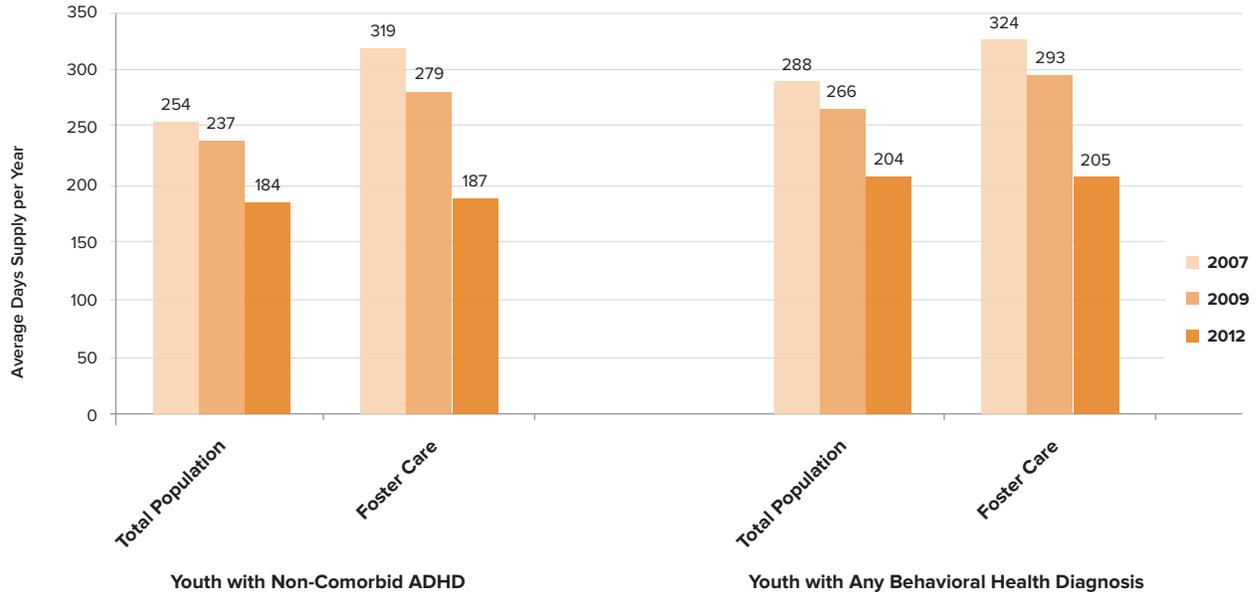


Figure 3

Average Annual Days Supply of Antipsychotics by Year, Diagnosis, and Foster Care Status among PA Medicaid-enrolled Youth Ages 6-18 Years



3 Attention Deficit Hyperactivity Disorder and Psychotropic Medication Use

Antipsychotics have approved clinical indications for serious mental illness in youth, including schizophrenia and bipolar disorder, as well as for aggressive behaviors associated with autism and intellectual disability. However, off-label use of antipsychotics for youth with ADHD is increasingly common nationally. More than half of youth antipsychotic users on Medicaid had a diagnosis of ADHD. Especially concerning, many of these youth do not have an additional (also called “comorbid”) behavioral health diagnosis clinically indicated for antipsychotics; specifically, one-third of antipsychotic users had ADHD in the absence of a comorbid clinically indicated behavioral health diagnosis (See Table 1). In fact, the prescribing of antipsychotics to youth with non-comorbid ADHD (i.e., ADHD without any comorbid behavioral health diagnosis) is frequent despite limited safety and efficacy evidence or federal approval to support this practice.

The findings indicate that, despite little evidence for antipsychotic treatment for youth with ADHD, these youth receive antipsychotic medications for similar durations as youth with other behavioral health diagnoses and yet, may not be receiving regular behavioral health care. Among youth on multiple classes of psychotropic medications, less-impaired youth (those with ADHD as their only behavioral health diagnosis) experienced a lower frequency of behavioral health visits than youth with more significant psychiatric impairment (diagnosis of autism, bipolar, or schizophrenia) despite receipt of similar medication therapies. More troubling is a decline over time in regular behavioral health care for youth with ADHD who are receiving psychotropic polypharmacy, half of whom are on an antipsychotic.

- ▶ **The duration of antipsychotic exposure for youth with ADHD without any additional diagnosis (also called “non-comorbid”) is the same as youth with other behavioral health diagnoses:** On average, for the total Medicaid population, the duration of antipsychotic use for youth with non-comorbid ADHD was roughly one month less than youth with any behavioral health diagnosis. For the total population and youth in foster care, the average number of days a youth was on an antipsychotic declined significantly between 2009 and 2012—this was true for youth with non-comorbid ADHD, as well as youth with any behavioral health diagnosis. In 2012, for youth with non-comorbid ADHD, the average number of days a youth was prescribed an antipsychotic within the year was 184 days (6.1 months) and for youth with any behavioral health diagnosis, the average number of days a youth was prescribed an antipsychotic was 204 (6.8 months). (See Figure 3)
- ▶ **Youth in foster care with non-comorbid ADHD who are prescribed polypharmacy receive fewer visits with a provider for their behavioral health concerns over time:** The percentage of youth in foster care with non-comorbid ADHD on 2+ psychotropic medications classes receiving less than one provider visit for their behavioral health concerns per month increased from 36.8% in 2007 to 51.8% in 2012. Also during this period, the number of youth receiving three or more visits per month (suggestive of routine behavioral health care) declined from 30.7% to 24.8%. This shift towards fewer routine visits was not seen for youth receiving similar medication therapy with more significant psychiatric impairment (diagnosis of autism, bipolar, or schizophrenia) for whom routine care was more common. Among those with a psychiatric diagnosis, the percentage of youth receiving one to two visits per month and three or more visits per month remained stable from 2007 to 2012. (See Figures 4a and 4b)

4 Polypharmacy (See Figure 2)

Polypharmacy is the use of multiple psychotropic medications simultaneously. In this study, polypharmacy is defined as the use of multiple classes of psychotropic medications together for a duration of at least 30 days (e.g., the simultaneous use of antipsychotics and antidepressants for one month or more). Polypharmacy use in children and adolescents is concerning due to scant efficacy information coupled with safety concerns regarding the use of combinations of psychotropic medications in youth. The American Academy of Child and Adolescent Psychiatry advises caution and a clear rationale in the prescribing of multiple medications to children and adolescents due to the potential for drug-drug interactions.¹¹

- ▶ **Polypharmacy began to decline after 2010 for youth in foster care:** Among youth in foster care, use of 2-class polypharmacy rose each year from 2007 to 2010, followed by a decline in 2012 to 140 per 1000, down from 151 per 1000 in 2010. Notably, 3+ class polypharmacy among these children followed a similar pattern, declining in 2012 to 121 per 1000 from 152 per 1000 in 2010.
- ▶ **Children in foster care experience higher rates of polypharmacy:** Use of 2-class and 3+ class polypharmacy in 2012 by youth in foster care is approximately 3-fold higher compared to the overall Medicaid population.
- ▶ **A significant number of youth in foster care are on many classes of psychotropic medications simultaneously:** One in 20 youth in foster care were prescribed four or more psychotropic medication classes at the same time.
- ▶ **Similar 2012 declines are seen among the overall Medicaid population:** Following a general trend of increase from 2007 to 2010 for both indicators of 2-class and 3+ class polypharmacy (reaching 55 per 1000 and 44 per 1000 youth in 2010, respectively), in 2012, the rates reached study period low levels of 49 per 1000 and 32 per 1000, respectively.

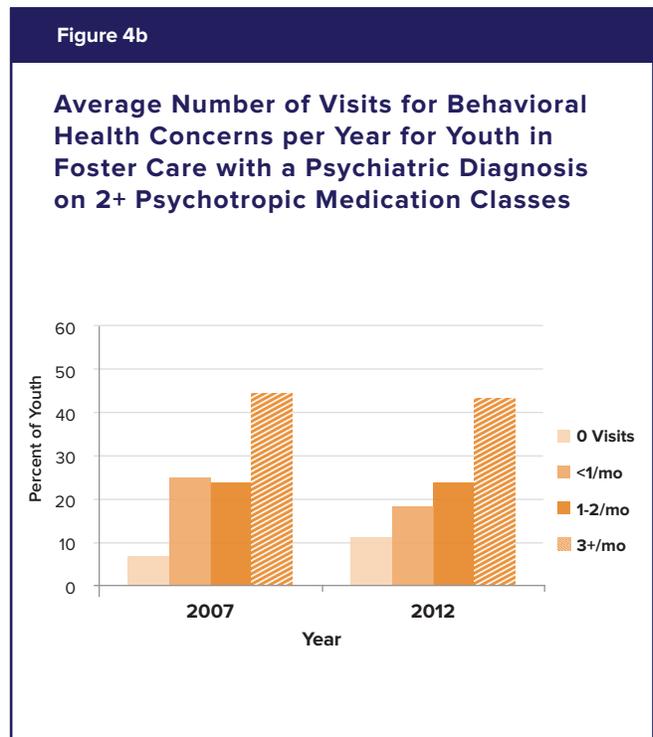
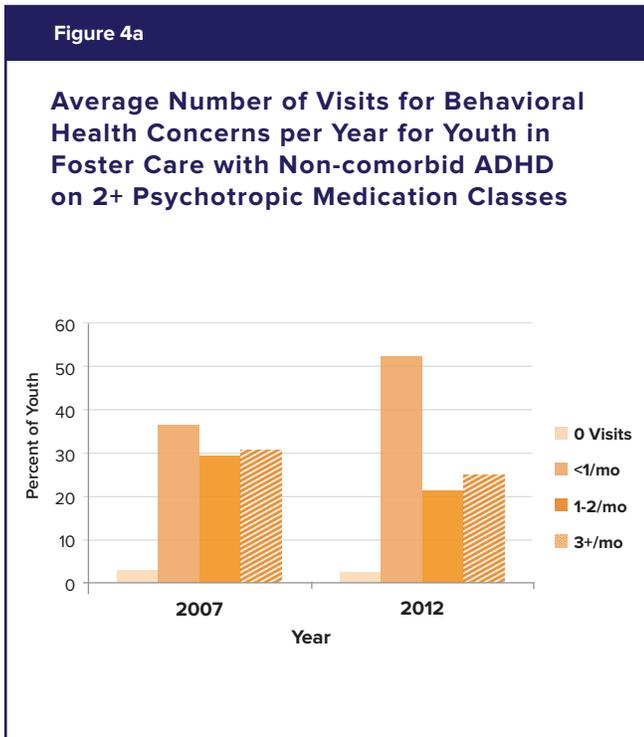


Figure 5

Antipsychotic and Polypharmacy Use by Gender and Foster Care Status among PA Medicaid-enrolled Youth Ages 6-18 Years, 2005-2012 Average

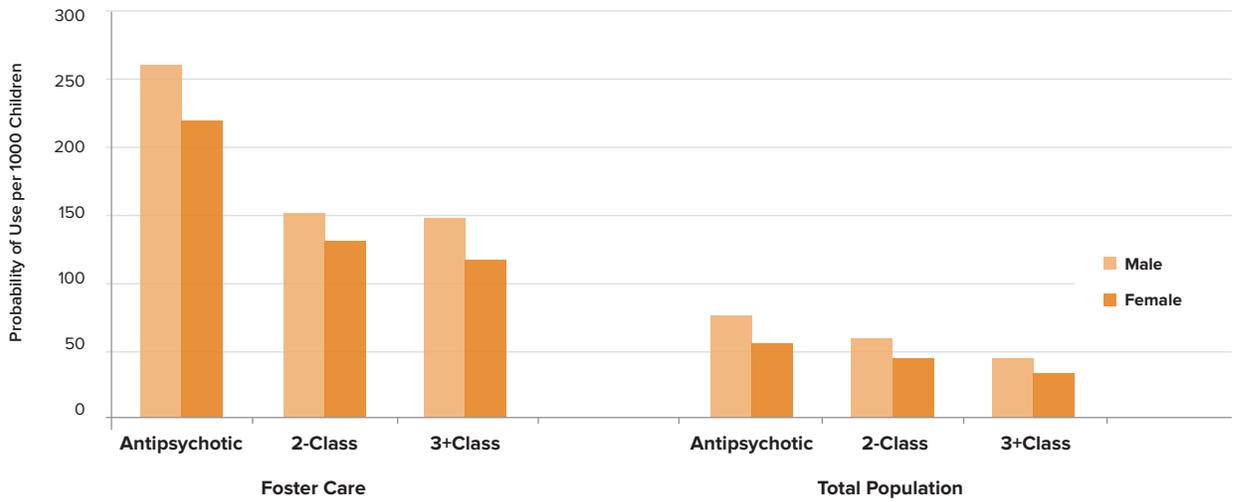
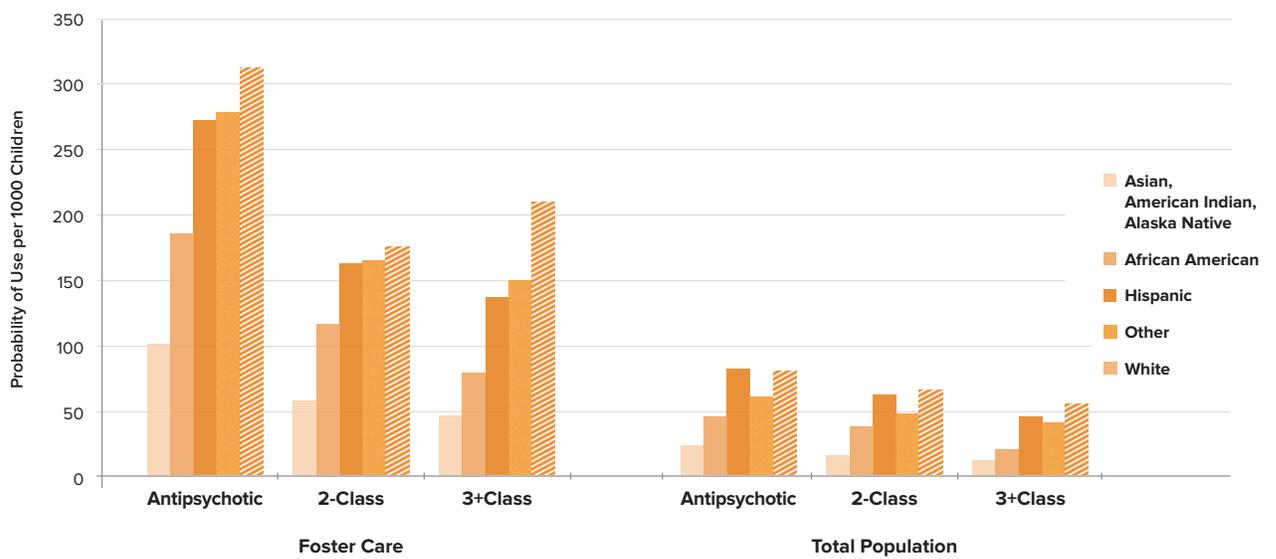


Figure 6

Antipsychotic and Polypharmacy Use by Race/Ethnicity and Foster Care Status among PA Medicaid-enrolled Youth Ages 6-18 Years, 2005-2012 Average



5 Demographic and Clinical Differences in Psychotropic Medication Use

The study examined differences in antipsychotic usage and polypharmacy based on gender, race and age and found that males, white youth, and older youth use antipsychotics at a higher rate. In an examination of clinical characteristics of antipsychotic users, the analysis found that off-label prescribing of antipsychotic medications is common. Specifically, more than half of antipsychotic users in Pennsylvania have no diagnosis with FDA approval to indicate the prescribing of these medications.

a. Gender (See Figure 5)

Males use psychotropic medications at a higher rate than females: For both youth enrolled in foster care and the overall Medicaid population, males are more likely than females to use antipsychotic medications, as well as use 2-class and 3+ class polypharmacy.

b. Race/Ethnicity (See Figure 6)

Within the foster care population, white youth have the highest rates of antipsychotic medication use: This remains true for the use of 2-class and 3+ class polypharmacy. Youth classified as “Other” and Hispanic youth in foster care have comparable rates of antipsychotic and polypharmacy medication use. Note: “Other” is a racial category within personal summary files of Pennsylvania Medicaid claims, most often indicating mixed or unknown racial designation.

Youth in foster care have a significantly greater percentage of racial designations of “Other” than do youth not in foster care: This group of youth within the foster care program appears to be particularly vulnerable to higher levels of psychotropic medication use.

Hispanic and white youth have the highest rates of antipsychotics and polypharmacy use in the overall Medicaid population: These rates of use are comparable between these racial/ethnic groups.

Asian, American Indian, and Alaskan Native youth are the least likely to use antipsychotics, followed by African American youth: This is true for both the foster care and overall Medicaid populations.

c. Age (See Figure 7)

For youth in foster care, those ages 11-14 have the highest rates of antipsychotic use: Specifically, for youth in foster care, youth 11-14 years were the most likely users of antipsychotics (28% in 2012), exceeding use for 15-18 year olds (23% in 2012). More importantly, rates of use for 11-14 year old youth did not decline from 2007 to 2012, while rates of use declined for all other age groups.

In contrast, in the overall Medicaid population, youth ages 11-14 and 15-18 had similar rates of use (6% and 7%, respectively, in 2012): These rates represent a decline from 2007 rates of 8% and 9%, respectively.

d. Behavioral Health Diagnosis (See Table 1)

The percentage of youth receiving antipsychotics off-label (without FDA approval) is high: In 2012, 56% of antipsychotic users in the Pennsylvania Medicaid program had no clinically indicated diagnosis for such use; this represents a decline from 63% in 2007. For youth in foster care, the rate of off-label use was stable during the study period. In 2012, 61% of youth using antipsychotics in foster care did not have a clinically indicated behavioral health diagnosis.

One-third of antipsychotic users in the Pennsylvania Medicaid program have ADHD in the absence of another clinically indicated diagnosis for antipsychotic medications: This percentage has remained stable from 2007 to 2012 at 36%. Youth with conduct disorder and those with miscellaneous behavioral health diagnoses also represent a sizable proportion of antipsychotic users in the Medicaid program. Similar trends were seen among youth in foster care.

Figure 7

Antipsychotic Use by Age Category and Foster Care Status, 2007 and 2012

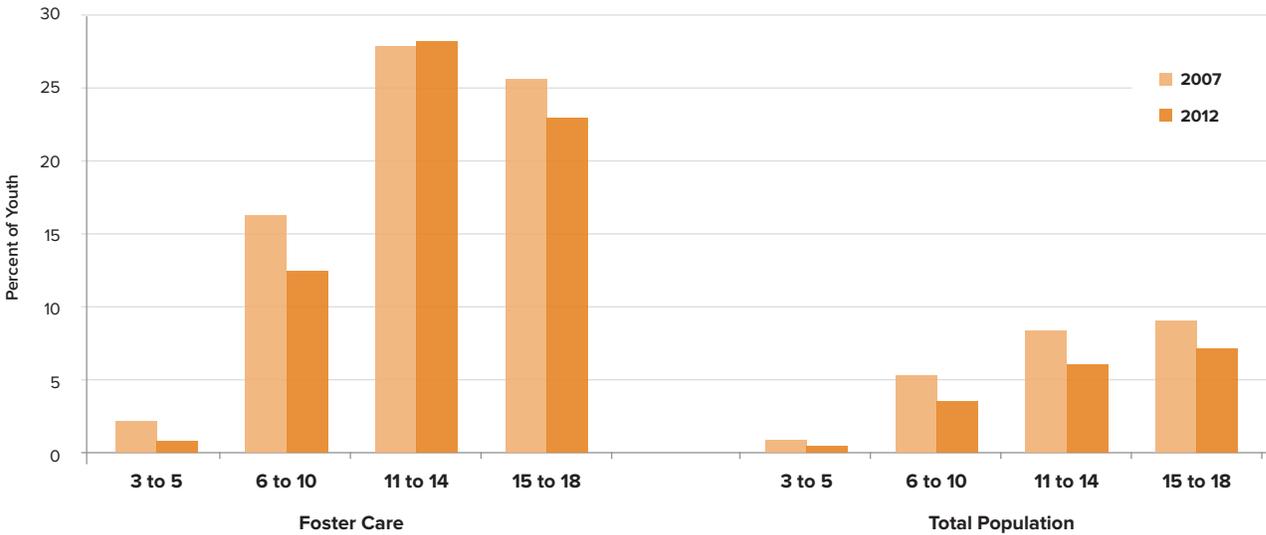


Table 1

Percent of Antipsychotic Users with Specified Behavioral Health Diagnoses, 2007 and 2012

All Children Ages 6-18			Foster Care Ages 6-18		
	2007 (n=34,559)	2012 (n=28,570)		2007 (n=6,046)	2012 (n=3,396)
Any Approved Indication+	37.3%	43.8%	Any Approved Indication+	36.3%	38.8%
Autism	14.6%	25.2%	Autism	6.0%	10.2%
Bipolar	22.4%	18.6%	Bipolar	27.8%	27.2%
Intellectual disability	2.5%	7.4%	Intellectual disability	2.6%	6.4%
Schizophrenia	3.1%	1.6%	Schizophrenia	4.9%	2.2%
No Approved Indication	62.7%	56.3%	No Approved Indication	63.7%	61.3%
ADHD*	36.9%	36.0%	ADHD*	31.0%	32.7%
Conduct disorder*	23.6%	24.2%	Conduct disorder*	34.4%	38.2%
Miscellaneous*	17.6%	18.2%	Miscellaneous*	23.9%	28.3%
Depression*	11.3%	10.9%	Depression*	15.5%	16.4%
Anxiety*	3.3%	4.5%	Anxiety*	2.8%	4.3%
Developmental delay*	1.0%	1.9%	Developmental delay*	0.6%	1.3%
No Diagnosis	7.4%	5.3%	No Diagnosis	6.6%	4.8%

+ FDA approved clinical indication for use of second-generation antipsychotic

* Diagnosis in the absence of FDA approved comorbid diagnosis

6 Visits with a Provider for Behavioral Health Concerns

(See Figure 8)

In order to understand the relationship between medication usage and receipt of behavioral health care, the study examined the annual number of behavioral health visits for youth receiving psychotropic polypharmacy (a population for whom routine behavioral health monitoring is advised). These visits were defined as any outpatient or inpatient encounter in which a behavioral health diagnosis was the primary or secondary diagnosis. Behavioral health diagnoses included ten diagnoses/diagnostic categories: anxiety, ADHD, autism, bipolar, conduct disorder, depression, developmental delay, intellectual disability, miscellaneous behavioral health, and schizophrenia (*For more information, see Appendix C*). These visits were not restricted by place of service or provider specialty (e.g., psychiatry versus physical health). For each child, the count of visits with a provider for behavioral health concerns within the year was categorized as an average number of visits per month. For example, a child with 16 visits per year would be labeled as receiving 1-2 visits per month.

- ▶ **Most youth on multiple medications received a visit related to their behavioral health concerns:** Among users of polypharmacy (two or more classes of psychotropic medications simultaneously), youth in foster care and on SSI were the most likely to have an average of three or more behavioral health visits per month.

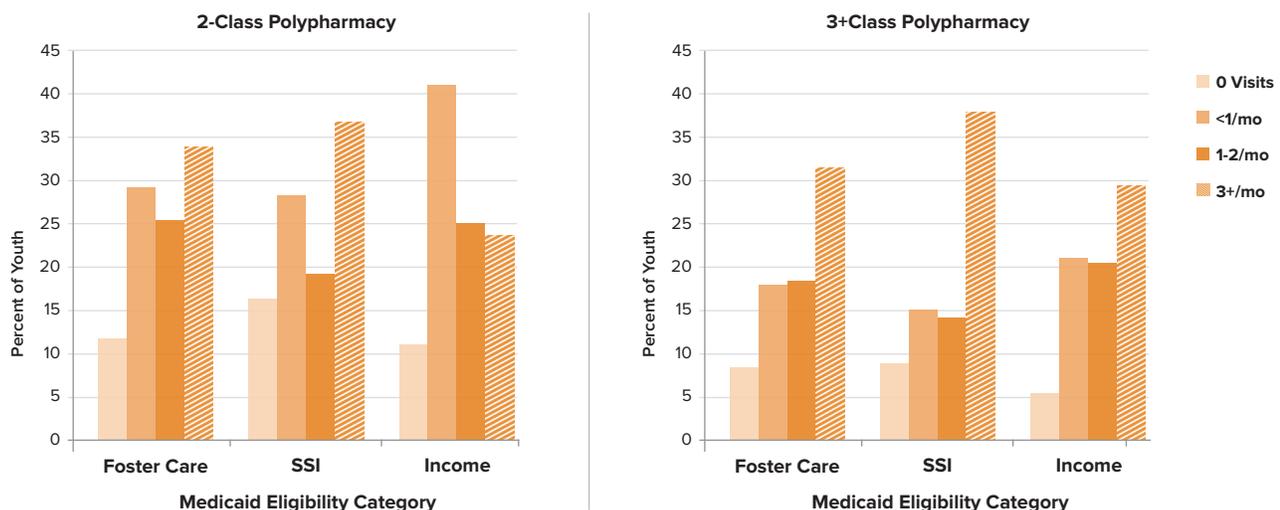
- ▶ **3+ medication use is associated with more frequent visits due to behavioral health concerns:** In general, youth receiving 3+ classes of medications simultaneously were more likely to have a higher frequency of behavioral health visits and therefore likely to be receiving regular behavioral health care, compared to those youth receiving two classes of medications.

- ▶ **However, some children on psychotropic medications failed to have any visit addressing their behavioral health concerns:** Roughly one in ten Medicaid-enrolled youth with 3+ class polypharmacy did not have a behavioral health visit within the year. This was consistent across all eligibility groups, including foster care.

To some degree, high rates of use and accompanying behavioral health visit data indicate that many youth are accessing behavioral health services. However, the data does not measure the appropriateness, type, or quality of the behavioral health services provided.

Figure 8

Average Number of Visits for Behavioral Health Concerns within the Year among PA Medicaid-enrolled Youth Ages 6-18 Years, 2007-2012 Average



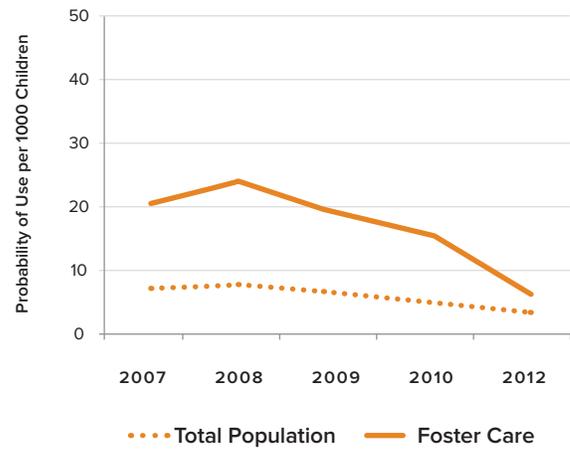
B. THE USE OF PSYCHOTROPIC MEDICATIONS BY YOUNG CHILDREN 3-5 YEARS IN PENNSYLVANIA

Children ages 3-5 years had significantly lower rates of psychotropic medication and polypharmacy use than youth ages 6-18 years. However, any use among this age group is concerning, and requires further inquiry. Children ages 3-5 years experienced a slight decline in usage rates of antipsychotics and polypharmacy starting in 2009 for both children in foster care and those enrolled in Medicaid overall (a slightly earlier decline than identified for school-age youth in the previous section).

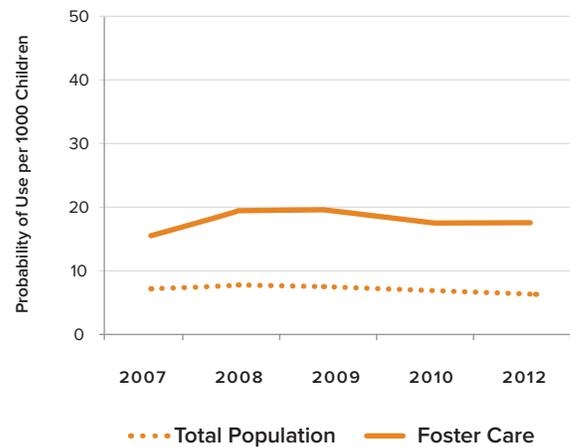
- ▶ **The rate of antipsychotic use was far lower for young children:** In 2012, the use of antipsychotics occurred in 3 per every 1000 Medicaid-enrolled young children (0.3%) and 6 per 1000 young children in foster care (0.6%). (See Figures 7 and 9)
- ▶ **Antipsychotic use declined over time for young children in foster care and enrolled in Medicaid overall:** Young children's use declined by greater than 50% from 2007 to 2012 for those in Medicaid overall (from 7.5 per 1000 to 3 per 1000). Among children in foster care, a decline was also seen. Note: given small sample sizes, a percent decline cannot be calculated. (See Figure 9)
- ▶ **The rate of polypharmacy remained relatively stable:** Overall, the rate of use of 2-class polypharmacy among young children remained stable over the period of 2007 to 2012. However, a small decline in use of 3+class polypharmacy was seen over the period, more notably for young children in foster care than for the overall Medicaid population. Note: these rates should be interpreted with caution given small sample sizes. (See Figure 9)

Figure 9

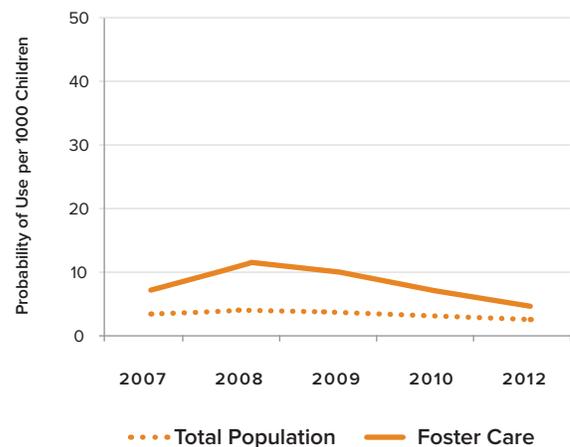
Antipsychotic Medication Use among PA Medicaid-enrolled Youth Ages 3-5 Years



2-Class Polypharmacy Use among PA Medicaid-enrolled Youth Ages 3-5 Years



3+Class Polypharmacy Use among PA Medicaid-enrolled Youth Ages 3-5 Years



IV. DISCUSSION AND RECOMMENDATIONS

The use of psychotropic medications in Pennsylvania, including antipsychotics, is widespread among children and adolescents in Medicaid and in foster care, and is higher than previously reported.¹ Trends in antipsychotic use are particularly concerning as these medications have been increasingly prescribed for off-label diagnoses, largely ADHD. The prescribing of antipsychotics and psychotropic polypharmacy to children and adolescents with non-comorbid ADHD must be addressed. Not only is this treatment lacking important safety information, but medicated youth with an ADHD diagnosis receive significantly fewer behavioral health visits than youth with more severe behavioral health impairments, and thus, may not be receiving adequate medication monitoring. This is alarming, as antipsychotic medications are associated with serious side effects in youth.

Despite these concerning trends, the study findings include some encouraging numbers. Within Pennsylvania, the use of psychotropic medications, particularly, the off-label use of antipsychotics began to decline in 2012 for school age youth. This trend will require further evaluation through review of 2013 data. For young children, declines in medication prescribing were noted as early as 2008, when antipsychotic medication rates for children in foster care ages 3-5 years showed a downward trend. These decreases may be a response, in part, to DHS's implementation in 2008 of a policy requiring prior authorization for Medicaid Fee-For-Service (FFS) patients for approval for prescription of certain psychotropic medications, including antipsychotics for children under the age of 6 (this requirement has since been expanded for all children and adolescents younger than 18 years on Medicaid FFS).¹²

Psychotropic medication will always be an important strategy for addressing behavioral health needs for some children and adolescents, but it should be used in combination with effective psychosocial treatments and interventions. As with all interventions, use of psychotropic medication should be a collaborative process, with informed consent and active participation by the youth and the family and/or legal custodian or guardian. At the same time, consistent with national data, Pennsylvania's prescribing patterns (e.g., polypharmacy and/or antipsychotics to control disruptive behavior) reflect a disposition toward medication regimens that are increasingly complicated and not supported by efficacy and safety data. Achieving the right balance of psychotropic medication prescribing requires ensuring that youth are receiving appropriate medications while being offered access to other evidence-based therapeutic services that may better address underlying causes of behavioral problems, such as exposure to trauma.

States have put in place a number of tracking and monitoring policies related to psychotropic medications for children and adolescents in foster care in response to the federal *Child and Family Services Improvement and Innovation Act of 2011*. These efforts will be both supported and standardized by the addition of a performance measure related to pediatric antipsychotic use within the Healthcare Effectiveness Data and Information Set (HEDIS) by the National Committee for Quality Assurance.¹³ Our findings highlight the need to create a system of monitoring and oversight that is accessible and understandable to all stakeholders—children, families, caseworkers, clinical prescribers, policymakers, payers, and other health and human service providers. To accomplish this, we recommend that Pennsylvania develop comprehensive guidance on psychotropic medication prescribing for children and adolescents, especially those in foster care. Specifically, we recommend that:

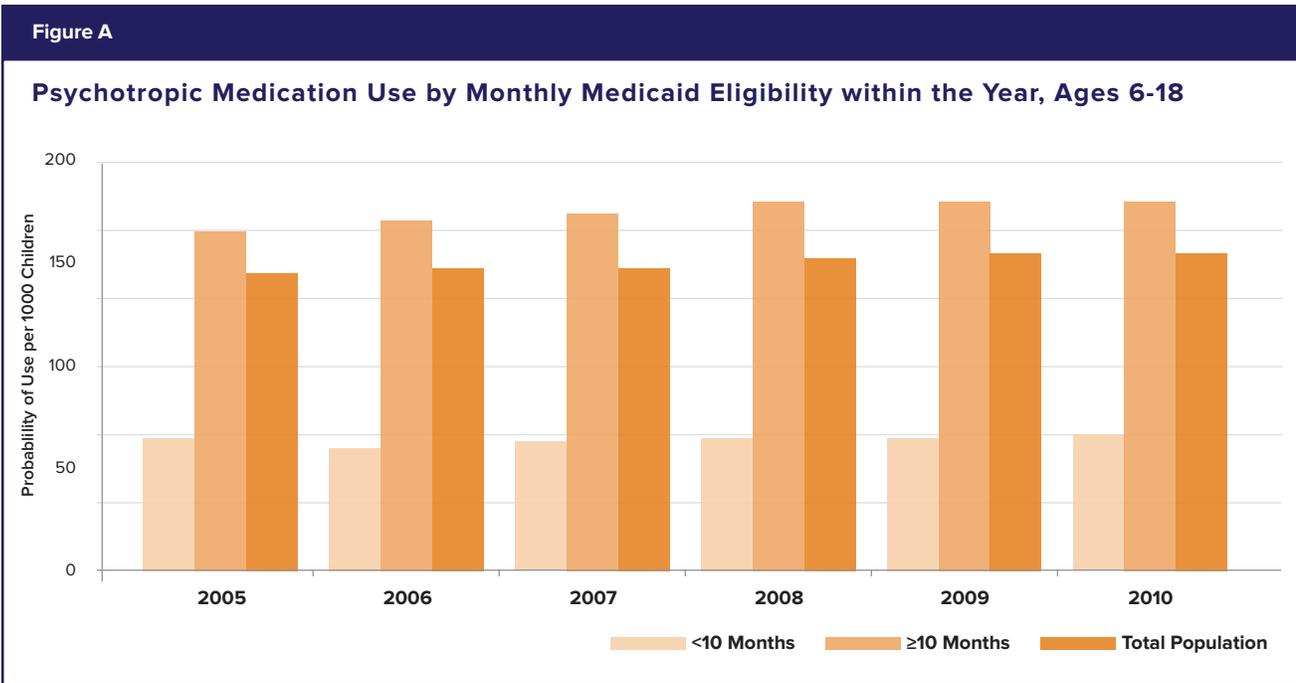
- ▶ Medicaid physical health MCOs, whose members include children and adolescents in foster care, should adopt the Pennsylvania FFS Medicaid system's prior-authorization requirements for all children and adolescents under 18, which Medicaid first implemented in 2008 and expanded to all children and adolescents under 18.¹
- ▶ DHS should expand investments in and reimbursements of non-pharmacological behavioral health interventions—leveraging resources through the federal Child Welfare Demonstration Project, through university collaborations (e.g., the Pennsylvania Parent Child Interaction Therapy (PCIT) Network), and through increased statewide access to evidence-based treatments for childhood trauma.
- ▶ DHS should broadly incorporate more robust psychotropic medication oversight policies and specifically, the protocols and policies related to psychotropic medications as required by federal law, which include: (1) screening and evaluation to identify mental health needs; (2) standards of consent and assent to treatment and ongoing communication; (3) medication monitoring; (4) availability of mental health expertise; and (5) mechanisms for sharing current information and education materials regarding the use of psychotropic medications. To ensure widespread distribution and aid implementation, these policies should be publicly accessible, and at minimum, available on the DHS website.
- ▶ DHS should ensure ongoing population level oversight and data collection to capture changes in health outcomes related to psychotropic medication use statewide, at the county level, and by health plan. This data can help provide a baseline for DHS to set best practice targets related to psychotropic medication use for children and adolescents in Medicaid, and especially those in foster care.

¹ NOTE: In Pennsylvania Medicaid, behavioral health benefits are carved out from physical health benefits, meaning an individual receives behavioral health benefits from a separate MCO than the MCO that provides the individual's physical health and pharmacy benefits. In 2014, Pennsylvania had five behavioral health MCOs and seven physical health MCOs.



APPENDIX A: PSYCHOTROPIC MEDICATION USE BY MEDICAID ELIGIBILITY

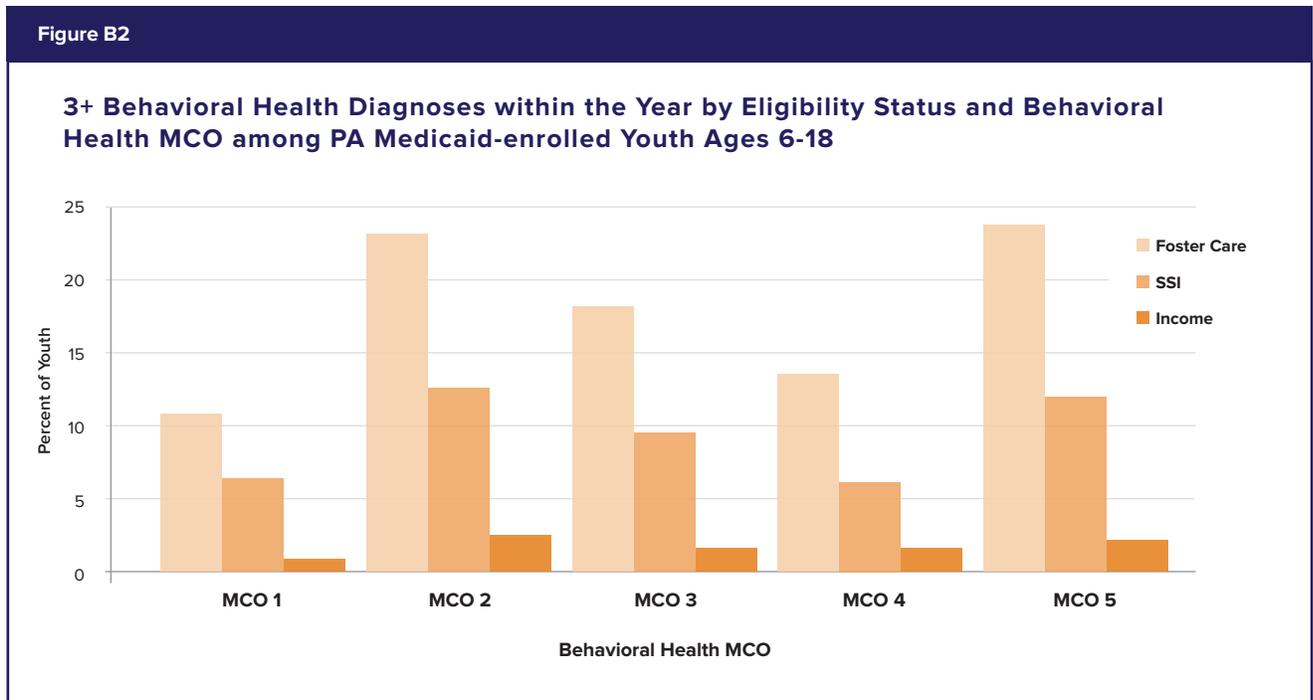
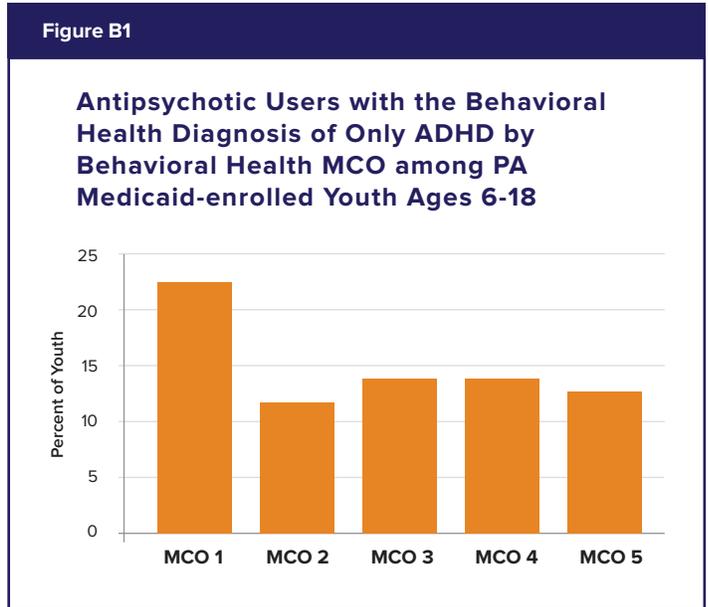
Figure A shows medication utilization rates based on Medicaid eligibility. The graph compares the rate of medication utilization for youth on Medicaid less than 10 months within the calendar year, youth continuously eligible for Medicaid for more than 10 months, and the rate for the overall youth population with any enrollment in Medicaid within the year. The utilization rates are slightly elevated among youth with 10+ months eligibility per year as compared to all youth (total population) due to increased observation time within the year. Youth with 10+ months of yearly eligibility were selected for inclusion in this brief given this increased observation time with improved reliability of medication and diagnostic information within and across years.



APPENDIX B: VARIATION IN BEHAVIORAL HEALTH MEASURES AMONG PENNSYLVANIA MEDICAID BEHAVIORAL HEALTH MANAGED CARE ORGANIZATIONS (MCOs)

Figure B1 shows the percentage of antipsychotic users with non-comorbid ADHD within each of the five Behavioral Health MCOs in Pennsylvania. The use varies by MCO from 11.6% (MCO 2) to 22.5% (MCO 1). MCO 1 appears to be an outlier, with MCOs 2-5 demonstrating a range of less than two percentage points. Among youth served by MCO 1, nearly one in four users of antipsychotics have no FDA approved diagnosis.

Figure B2 shows the percentage of youth with three or more behavioral health diagnoses within a given year within each of the five Behavioral Health MCOs. There is a large variability in the percentage of youth receiving multiple behavioral health diagnoses between MCOs. Across all MCOs, youth in foster care are most likely to receive 3+ diagnoses, but the range in the proportion with this outcome is 10.7 to 23.8%. To some degree, this measure of receipt of three or more diagnoses may be indicative of poor care coordination for youth in foster care, who are vulnerable to changes in health care providers in tandem with removal from home and subsequent placement changes.



APPENDIX C: BEHAVIORAL HEALTH DIAGNOSES AMONG YOUTH WITH POLYPHARMACY

The table below displays the proportion of users of 3+ class polypharmacy with each of ten behavioral health diagnoses for years 2007 and 2012. Results are displayed for both the overall Medicaid population, as well as separately for the foster care population. Diagnoses are not mutually exclusive, as many children have comorbidities.

Figure C

3+ Class Polypharmacy					
All Children Ages 6-18			Foster Care Ages 6-18		
	2007 (n=20,509)	2012 (n=17,873)		2007 (n=3,239)	2012 (n=1,918)
Autism	15.4%	25.4%	Autism	8.2%	12.9%
Bipolar	26.5%	21.7%	Bipolar	34.6%	32.8%
Intellectual disability	3.2%	8.3%	Intellectual disability	3.6%	8.8%
Schizophrenia	3.1%	1.5%	Schizophrenia	4.9%	2.4%
ADHD	59.9%	65.2%	ADHD	58.3%	61.8%
Conduct disorder	37.9%	41.1%	Conduct disorder	57.4%	62.9%
Miscellaneous	31.1%	35.9%	Miscellaneous	43.8%	52.9%
Depression	21.7%	21.5%	Depression	31.3%	33.3%
Anxiety	6.6%	11.8%	Anxiety	5.9%	10.8%
Developmental delay	2.2%	5.8%	Developmental delay	1.7%	3.2%
No Diagnosis	7.0%	4.1%	No Diagnosis	4.6%	2.9%

- Behavioral health diagnoses were classified using the Diagnostic and Statistical Manual of Mental Disorders IV-TR and coded using the International Classification of Diseases, Ninth Revision (ICD-9) classification.
- “Miscellaneous” behavioral health diagnosis was inclusive of the following: mental disorders due to conditions classified elsewhere (293, 294); delusional disorders (297); other nonorganic psychoses (298); dissociative and somatoform disorders (300.10–300.19, 300.30–300.99); personality disorders (301.10–301.30, 301.50–301.99); special symptoms or syndromes, not elsewhere classified (307); acute reaction to stress (308); adjustment reaction (309); and disturbance of emotions specific to childhood and adolescence (313.90–313.99).
- Percentages do not add up to 100%, as diagnoses are not mutually exclusive, i.e., each child may have more than one diagnosis.
- Some antipsychotics are approved for children as young as 13 years for schizophrenia. Some antipsychotics are approved for children as young as 10 years for bipolar disorder, and some antipsychotics are approved for children as young as 5 years for irritability associated with autism.¹⁴
- There is non-systematic underreporting in managed care health plans. Mental health diagnoses may be subject to underreporting of a magnitude that cannot be determined at this time.

APPENDIX D: PSYCHOTROPIC MEDICATION USE AMONG YOUTH AGES 6-18 YEARS IN FOSTER CARE, ADOPTION ASSISTANCE, AND SUBSIDIZED PERMANENT LEGAL CUSTODIANSHIP IN 2010

The table below includes medication rates in 2010 for youth in foster care, as discussed in the text of the brief, as well as rates for other youth who are involved with the child welfare system, including adoption assistance and subsidized permanent legal custodianship.

Figure D

Foster Care Youth 6-18 (N=18,525)			Adoption Assistance (N=17,477)			Permanent Legal Custody (N=2,022)		
	Number	Percent		Number	Percent		Number	Percent
Any Psychotropic Medication	8,385	45.3%	Any Psychotropic Medication	5,774	33.0%	Any Psychotropic Medication	526	26.0%
Any Antipsychotic	4,996	27.0%	Any Antipsychotic	2,254	12.9%	Any Antipsychotic	212	10.5%
2-Class Polypharmacy	2,789	15.1%	2-Class Polypharmacy	1,602	9.2%	2-Class Polypharmacy	156	7.7%
3+ Class Polypharmacy	2,828	15.3%	3+ Class Polypharmacy	1,538	8.8%	3+ Class Polypharmacy	119	5.9%

- Children whose adoption assistance agreements are provided for under title IV-E of the Social Security Act and children who had been eligible for federal foster care subsidies prior to their adoption, are categorically eligible for Medicaid until age 18.¹⁵ Many youth with Medicaid eligibility category “Adoption Assistance” may be eligible due to a past adoption rather than exposure to the child welfare system in the years of analysis. Due to the heterogeneous nature of youth in this category, we caution that interpretation of medication rates in this population may be difficult.

APPENDIX E: PSYCHOTROPIC MEDICATION CLASSIFICATION

Psychotropic classes included stimulants, antidepressants, second generation antipsychotics (SGAs), sedative/hypnotics, anxiolytics, mood-stabilizers, and alpha agonists. Antidepressants included selective serotonin reuptake inhibitors (SSRI), tricyclic antidepressants (TCA), and other antidepressants. Mood-stabilizing agents included carbamazepine, valproic acid, gabapentin, lamotrigine, and oxcarbazepine anticonvulsants and lithium. Since alpha-agonists, such as clonidine and guanfacine, can also be prescribed for physical health conditions, these agents were only included in the analysis if a child also had a claim for another psychotropic medication in one of the above-mentioned classes. Sedatives/hypnotics excluded antihistamines, which in pediatric practice most often have a non-psychiatric indication for use.

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ACKNOWLEDGEMENTS

PolicyLab thanks our partner, the Commonwealth of Pennsylvania's Department of Human Services, especially the Office of Children, Youth, and Families; the Office of Medical Assistance Programs; and the Office of Mental Health and Substance Abuse Services. DHS provided the data for this study and offered valuable input and feedback throughout the research process.

We would also like to thank PolicyLab's Zeinab Mohamad, Vera Huang, Rachel Meadows, and Laura Repcheck for providing editorial, research, communications, and strategy support.

Research for this project was funded by Casey Family Programs.

This Pennsylvania study builds on PolicyLab's national psychotropic medication portfolio, which was funded by the federal Agency for Health Care Research and Quality. Since 2009, PolicyLab has conducted comprehensive research on trends in psychotropic medication use across all 50-states as well as on the child-level and policy-level factors influencing medication use. For more information on PolicyLab's national research, see PolicyLab's website, <http://policylab.chop.edu>.

RECOMMENDED CITATION

Matone, M., Zlotnik, S., Miller, D., Kreider, A., Rubin, D., & Noonan, K. (2015). Psychotropic Medication Use by Pennsylvania Children in Foster Care and Enrolled in Medicaid: An Analysis of Children Ages 3-18 Years. Philadelphia: PolicyLab at The Children's Hospital of Philadelphia.



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