CHAPTER 5

Use of Psychotropic Medications among Medicaid Beneficiaries

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Key Points

- Overall, about 14 percent of Medicaid beneficiaries used a psychotropic medication during calendar year 2011. In 2011, Medicaid spent about $8 billion in fee for service for psychotropic medications—30 percent of the program's total fee-for-service drug spending.
- Because different age and eligibility groups vary in terms of their behavioral health diagnoses, severity of condition, functional status, and medical needs, their use of psychotropic medications differs accordingly.
  - Almost half (48 percent) of children and adults who qualified for Medicaid on the basis of disability used psychotropic medications. Although such individuals accounted for about 10 percent of Medicaid enrollees, they accounted for more than 50 percent of the psychotropic drug claims and 60 percent of fee-for-service spending on these medications.
  - Nearly one-quarter (24 percent) of children eligible based on child welfare assistance used a psychotropic medication, almost five times the rate of children eligible on a basis other than disability or child welfare assistance (5 percent).
- On average, children eligible for Medicaid based on child welfare assistance and children and adults eligible on the basis of disability used more psychotropic medications during the year and were more likely to use psychotropic medications throughout the entire year than beneficiaries in other eligibility categories. They averaged 16–17 psychotropic drug claims per user and almost half had a psychotropic claim in 10 or more months during the year. In comparison, children and adults eligible on a basis other than disability or child welfare assistance averaged 8–9 claims per user and about a quarter had a psychotropic claim in 10 or more months during the year.
- The high rates of psychotropic medication use in the Medicaid population, risks associated with these drugs, and research documenting inappropriate prescribing, have raised concerns, especially for children involved in the child welfare system and older adults with dementia. Given these concerns, federal and state agencies have developed several initiatives to improve prescribing practices for psychotropic medications (such as prior authorization and peer review for prescriptions that do not conform to standard clinical guidelines) and to provide educational and expert consultation services to prescribers of these medications.
- The Commission will continue to explore issues related to the use of psychotropic medications among Medicaid beneficiaries and whether these drugs are being prescribed appropriately. This includes analyzing psychotropic medication use at the individual level to identify occurrences of potential inappropriate use and reviewing federal and state Medicaid initiatives that are focused on improving prescribing practices for psychotropic medications.

CHAPTER 5: Use of Psychotropic Medications among Medicaid Beneficiaries

The Commission has previously discussed the unique role that Medicaid serves in providing access to treatment for poor and low-income people who are disabled by mental illness and other behavioral health conditions (MACPAC 2014, 2013a, 2013b, 2012a). In addition, the Commission has started to focus on the large number of Medicaid beneficiaries in need of and receiving behavioral health services (Chapter 4). This chapter examines one such behavioral health service, the use of psychotropic medications. Psychotropic medications are generally used to treat conditions such as depression, anxiety, schizophrenia, bipolar disorder, and attention deficit hyperactivity disorder (ADHD) and are an important component in the treatment of behavioral health conditions.

In the Commission's view, there are two compelling reasons to take a deeper look at psychotropic drug use in Medicaid. First, Medicaid spending on these drugs is substantial. Second, researchers have raised concerns about whether the high proportion of Medicaid enrollees using psychotropic medications and the number of medications used are appropriate (Chen et al. 2010, Essock et al. 2009, Zito et al. 2013).

Because different age and eligibility groups vary in terms of their behavioral health diagnoses, severity of condition, functional status, and medical needs, their use of psychotropic medications differs accordingly. This chapter examines beneficiary utilization of and program spending on psychotropic medications in Medicaid. We begin by reviewing overall psychotropic medication use and spending in Medicaid by eligibility group, age, and therapeutic drug class. We review the risks to children and adults of using psychotropic medications as well as current psychotropic prescribing guidelines from the U.S. Food and Drug Administration (FDA) and professional organizations. We then highlight research that provides evidence of potentially inappropriate prescribing patterns in Medicaid and describe federal and state activities aimed at improving the use of psychotropic medications, particularly for children in foster care and older adults with dementia. We conclude by briefly discussing the Commission's plans to conduct further analyses of the use of psychotropic medications in Medicaid.

Medicaid Psychotropic Utilization and Spending

Medicaid spent an estimated $8 billion in calendar year (CY) 2011 prior to the application of drug rebates for selected psychotropic medications prescribed to Medicaid enrollees in fee-for-service (FFS) arrangements. This represents 30 percent of all Medicaid FFS spending on prescription medications (Table 5-1).[1] While psychotropic medications are an integral part of current evidence-based treatment for mental illness, studies have found high levels of inappropriate psychotropic drug use by Medicaid enrollees that places these individuals at increased risk for adverse health events and death, particularly for children and older adults with dementia (Chen et al. 2010, Essock et al. 2009, Zito et al. 2013).

We analyzed outpatient pharmacy data from CY 2011 in the Medicaid Statistical Information System (MSIS), a federal source of administrative data that provides demographic, spending, service use, and other enrollment-related information on all individuals enrolled in the Medicaid program. We calculated baseline statistics on the number of users, number of prescription drug claims, and FFS spending for psychotropic medications by eligibility group, age group, and therapeutic drug class. We included anticonvulsants in our

definition of psychotropic medications because, although typically used to treat seizures, they are also frequently prescribed for bipolar disorder. (See Appendix 5A for a complete list of the medications included in our analysis and their therapeutic drug class.)[2]

The analysis included FFS as well as managed care organization (MCO) encounter claims. With the exception of calculations for Table 5-1, we excluded dually eligible, full-year institutionalized, and limited benefit enrollees from our analysis.[3] Due to the differences in psychotropic utilization among children eligible on a basis other than disability, these children were further separated into eligible on the basis of child welfare assistance and other non-disabled basis of eligibility. Children eligible on the basis of child welfare assistance include children in foster care or under legal guardianship and children receiving adoption assistance (Chapter 3).

Measures of utilization, such as counts of users and claims, combine FFS claims and MCO encounter data. Because MSIS managed care encounter claims do not report payment amounts, any spending information presented is for only those claims paid through FFS arrangements. The FFS drug spending in MSIS and presented in this analysis reflects the states' payments to pharmacies before the application of any drug rebates.[4] A more complete description of the analytic methodology is included in Appendix 5B.

Our analysis identified users of outpatient psychotropic medications whether or not they also had a diagnosis of a mental health condition, potentially leading to results that differ from those of studies using the presence of a mental health diagnosis to estimate the number of individuals with mental illness. For example, our pharmacy analysis found that about 14 percent of individuals used a psychotropic medication (Table 5-3). A separate MACPAC analysis of 2011 MSIS data found that approximately 16 percent of Medicaid enrollees had a mental health diagnosis associated with use of Medicaid services other than prescription drugs (Chapter 4).

There are a few reasons for the differences between these two estimates:

- First, some individuals with a behavioral health diagnosis may not have received a psychotropic medication. This suggests that using pharmacy data to estimate number of enrollees with mental illness could result in a lower number than using the presence of a behavioral health diagnosis. Using the Chronic Illness and Disability Payment System to identify individuals with a behavioral health diagnosis, we found that 56 percent of Medicaid beneficiaries with a mental health diagnosis also had a claim for a psychotropic medication.
- Second, Medicaid enrollees may have received psychotropic medications not paid for by Medicaid, such as medications obtained at community mental health centers that receive funding from other sources or through a provider that covers prescription drugs as part of an overall visit rate (e.g., a nursing home per diem rate).
- Finally, some individuals may receive a prescription for a psychotropic medication without having a recorded diagnosis for a mental illness. About 30 percent of psychotropic medication users in our analysis did not have a corresponding mental health or substance abuse diagnosis. This could be due to the drug being prescribed for a condition other than mental illness. For example, as noted above, anticonvulsants are used for the treatment of epilepsy and other seizure disorders as well as for bipolar disorder. One study estimated that 13 percent of Medicaid-enrolled children who were prescribed anticonvulsants had a seizure disorder and 6 percent had both a seizure disorder and a psychiatric disorder (Zito et al. 2006).

Because we used pharmacy data and included the use of anticonvulsants without any diagnostic limitations, our estimate of mental illness captures some individuals who would not have been included in any estimates that rely on behavioral health diagnosis data.

We note that our analysis was conducted at the aggregate level and did not look at utilization patterns of individuals. We have highlighted the proportion of beneficiaries using psychotropic medications within certain eligibility groups, but this analysis cannot address the appropriateness of the utilization for specific individuals within the group. Our analysis does not identify overuse or underuse of psychotropic medications, medication adherence, excessive duration or doses, or polypharmacy (that is, being prescribed more than one psychotropic medication at a time). Subsequent analyses may be conducted with a narrower focus, for instance, tracking the use of psychotropic medications by beneficiaries with mental health diagnoses and examining utilization patterns at the individual level. These analyses might help identify situations, such as polypharmacy or excessive doses, that indicate potentially inappropriate use and inform strategies for improving medication management.

Overview

Overall, psychotropic medications accounted for 18 percent of all FFS and managed care Medicaid drug claims and 30 percent of overall FFS Medicaid drug expenditures in 2011 prior to the application of drug rebates (Table 5-1). One reason for the difference in the amount of psychotropic medications as a share of all drug claims between FFS (21 percent) and managed care (11 percent) is that a few states carve out behavioral health drugs from managed care, so that some of the FFS psychotropic claims were attributable to managed care enrollees whose other drug claims were included in the managed care total. The difference between FFS and managed care may also be due to the different populations covered by each delivery system. Many states continue to cover individuals who are eligible on the basis of disability—which includes many individuals with behavioral health conditions—primarily under fee for service.

Eligibility group. Individuals who qualified for Medicaid on the basis of disability represented the

TABLE 5-1. Medicaid Prescription Drug Utilization and Spending, CY 2011

	All drugs (millions)	Psychotropic drugs (millions)	Psychotropic drugs as a share of all drugs
Total claims	**570.5**	**103.5**	**18.1%**
Fee for service	419.7	86.7	20.7
Managed care	150.8	16.8	11.1
Total spending[1]	**NA**	**NA**	**NA**
Fee for service	$28,270.8	$8,429.3	29.8%
Managed care[1]	NA	NA	NA

Notes: NA is not available. CY is calendar year.

[1] Managed care payment amounts are not available in the Medicaid Statistical Information System (MSIS). Due to the lack of managed care payment information, we do not report total spending in this table.

Source: MACPAC analysis of 2011 MSIS data.

TABLE 5-2. Medicaid Psychotropic Drug Utilization and Spending by Eligibility Group, CY 2011

Eligibility group	Enrollees (millions)	Psychotropic claims (millions)			FFS psychotropic spending (millions)[1]
		Total	FFS	MCO	
Total	**50.9**	**81.4**	**66.4**	**15.0**	**$7,438.6**
Children eligible on basis other than disability	32.7	16.3	13.8	2.5	1,769.8
Based on child welfare	0.9	3.4	3.2	0.2	454.3
Other non-disabled basis	31.8	12.9	10.6	2.3	1,315.5
Adults eligible on basis other than disability	12.8	22.6	16.4	6.2	1,179.2
Children and adults eligible based on disability	5.1	41.9	35.8	6.1	4,451.0

Notes: FFS is fee for service. MCO is managed care organization. CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

[1] Managed care payment amounts are not available in the Medicaid Statistical Information System (MSIS). Due to the lack of managed care payment information, total spending has been omitted from this table.

Source: MACPAC analysis of 2011 MSIS data.

majority of utilization and spending (Table 5-2). Although such individuals accounted for about 10 percent of Medicaid enrollees, they accounted for more than 50 percent of the psychotropic claims (42 million) and almost 60 percent ($4.5 billion) of FFS psychotropic drug spending. The high number of psychotropic claims and spending for individuals who qualified for Medicaid on the basis of disability reflects, in part, the fact that mental illness is frequently the qualifying condition for the disability pathway (MACPAC 2012a).

For individuals enrolled only in FFS-based delivery systems (i.e., who were not enrolled in a comprehensive managed care or separate behavioral health plan during the year), psychotropic spending per user was about $1,415 (Table 5-3). Spending per user for children eligible based on child welfare ($2,212) and children and adults eligible on the basis of disability ($2,064) were similar, and both of these populations had expenditures almost twice that of children eligible on a basis other than disability or child welfare ($1,028) and almost four times that of adults eligible on a basis other than disability ($590).

All eligibility groups had more than 5 percent of enrollees using psychotropic medications (Table 5-4); however, the use of psychotropic medications within each eligibility group differed considerably because of differences in behavioral health diagnoses, severity of condition, functional status, and other medical needs. Nearly one-quarter (24 percent) of children eligible based on child welfare used psychotropic medications, almost five times the rate of the other category of children eligible on a basis other than disability (5 percent). Similarly, children eligible based on child welfare had more claims than children eligible on a basis other than disability (16 vs. 8 claims per user). Almost half of

TABLE 5-3. Medicaid Psychotropic Drug Utilization and Spending by Eligibility Group for Fee-for-Service Only Enrollees, CY 2011

Eligibility group	Enrollees (millions)	Percent using psychotropic drugs	Claims per user	Spending per user
Total	**16.6**	**14.4%**	**12.7**	**$1,415**
Children eligible on basis other than disability	10.5	6.2	9.6	1,228
Based on child welfare	0.5	24.2	15.8	2,212
Other non-disabled basis	10.0	5.4	8.3	1,028
Adults eligible on basis other than disability	3.6	18.3	8.6	590
Children and adults eligible based on disability	2.3	45.2	17.2	2,064

Notes: CY is calendar year. Fee-for-service (FFS) only enrollees includes individuals who did not have a single month of enrollment in either a comprehensive managed care or separate behavioral health plan during the year. Because some managed care enrollees may have psychotropic drug use paid through FFS arrangements due to a behavioral health drug carve out, the figures presented here do not match other tables that show FFS claims and spending. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

TABLE 5-4. Medicaid Psychotropic Drug Utilization by Eligibility Group, CY 2011

Eligibility group	Enrollees (millions)	Psychotropic users (millions)	Psychotropic claims (millions)	Percent using psychotropic drug	Claims per user
Total	**50.9**	**6.9**	**81.4**	**13.6%**	**11.8**
Children eligible on basis other than disability	32.7	1.8	16.3	5.5	9.1
Based on child welfare	0.9	0.2	3.4	24.4	16.0
Other non-disabled basis	31.8	1.6	12.9	5.0	8.1
Adults eligible on basis other than disability	12.8	2.6	22.6	20.6	8.6
Children and adults eligible based on disability	5.1	2.4	41.9	47.7	17.2

Notes: CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

all children and adults who qualified for Medicaid on the basis of disability used psychotropic medications in 2011. These enrollees averaged 17 claims per user.

Medicaid enrollees using psychotropic medications include those using such drugs continually throughout the year as well as those using the drugs for a short period of time. To identify short-term versus long-term users, we looked at the distribution of users relative to the number of psychotropic drug claims they had during the year (Table 5-5) and the frequency of psychotropic medication use as measured by the number of enrolled months in which an individual had a claim (Table 5-6).[5]

Overall, about a quarter of Medicaid enrollees had one or two psychotropic drug claims during the year (Table 5-5). However, this varied by eligibility group. About a third of children eligible on a basis other than disability or child welfare (30 percent) and adults eligible on a basis other than disability (34 percent) had one or two drug claims during the year compared to 13 percent of children eligible on the basis of child welfare assistance and 14 percent of children and adults eligible on the basis of disability (Table 5-5). Twenty-two percent of children eligible on the basis of child welfare assistance and 25 percent of children and adults eligible on the basis of disability had 25 or more drug claims during the year, indicating both long-term use and multiple medications. While our analysis did not specifically show that different medications were used concurrently, other research has shown that almost 20 percent of Medicaid-enrolled children eligible on the basis of child welfare assistance or disability had concurrent use of psychotropic medications in three or more psychotropic drug classes (CHCS 2013).

To account for how different lengths of enrollment spans could distort our measure of frequency of use (e.g., one month with a drug claim out of one month of enrollment is not as indicative of frequent use as 12 months with a drug claim out of

TABLE 5-5. Distribution of Medicaid Psychotropic Drug Users by Number of Drug Claims and Eligibility Group, CY 2011

Number of claims during the year	Total	Children eligible on basis other than disability			Adults eligible on basis other than disability	Children and adults eligible based on disability
		All non-disabled children	Based on child welfare	Other non-disabled basis		
1 claim	15.6%	17.1%	7.2%	18.4%	21.7%	8.3%
2 claims	9.9	11.1	5.8	11.8	12.7	6.1
3–12 claims	43.3	49.5	41.7	50.6	44.4	37.5
13–24 claims	17.5	14.7	23.3	13.5	14.0	23.1
25–36 claims	7.6	4.9	12.0	3.9	4.7	12.7
Over 36 claims	6.1	2.8	10.0	1.8	2.5	12.2

Notes: CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

12 months of enrollment), we only included those individuals who were enrolled in Medicaid for the entire year (Table 5-6). Children eligible on the basis of child welfare assistance and children and adults eligible on the basis of disability were more likely to use psychotropic medications throughout the entire year. Almost half of the psychotropic drug users in the category of children eligible on the basis of child welfare assistance (46 percent) and in the category of children and adults eligible on the basis of disability (48 percent) had a psychotropic drug claim in ten or more months during the year, twice the share of children eligible on a basis other than child welfare or disability (23 percent) and adults eligible on a basis other than disability (24 percent) (Table 5-6).

Therapeutic class. We further analyzed psychotropic utilization and spending by therapeutic drug class. Antidepressants were the most commonly used class of psychotropic drugs, making up one-third (33 percent) of all FFS and managed care psychotropic claims but accounting for 11 percent of FFS spending on psychotropic drugs (Table 5-7). Antipsychotics were the most costly psychotropic drug class; they accounted for 18 percent of all FFS and managed care psychotropic claims but over half (56 percent) of FFS spending on psychotropic drugs. Within the antipsychotic class, over 70 percent of prescriptions were for brand-name drugs, which helps explain the higher spending on antipsychotics even though antidepressants were more widely prescribed. In comparison, 26 percent of antidepressant prescriptions were brand-name drugs.[6] A previous MACPAC analysis found that the top three drugs based on Medicaid FFS drug expenditures were antipsychotics (Abilify, Seroquel, and Zyprexa) and comprised over 10 percent of total FFS drug spending before rebates.[7] Generic versions of many of these antipsychotic medications became available only after 2011, the time period represented in our analyses, and so our data do not reflect their use. If other variables remain constant, spending within the antipsychotic drug class will likely decrease in subsequent years.

The share of enrollees using psychotropic medications in each drug class varied by eligibility group (Table 5-8). The drug class used by the

TABLE 5-6. Share of Psychotropic Drug Users by Eligibility Group and Number of Months with Claim for Full-Year Medicaid Enrollees, CY 2011

Number of months with a psychotropic claim	Total	Children eligible on basis other than disability			Adults eligible on basis other than disability	Children and adults eligible based on disability
		All non-disabled children	Based on child welfare	Other non-disabled basis		
1–3 months	31.6%	36.6%	19.4%	39.2%	42.7%	20.1%
4–6 months	17.2	20.0	16.1	20.6	18.1	14.7
7–9 months	16.5	17.3	18.3	17.2	15.4	16.9
10–12 months	34.7	26.1	46.2	23.1	23.8	48.3

Notes: CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, full-year institutionalized individuals, and individuals not enrolled in Medicaid for the entire year. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

TABLE 5-7. Distribution of Medicaid Psychotropic Drug Utilization and Spending by Drug Class, CY 2011

Drug class	Share of psychotropic claims			Share of FFS psychotropic spending
	Total	FFS	MCO	
ADHD drugs	13.0%	13.5%	11.0%	18.3%
Antianxiety drugs	11.1	10.6	13.1	0.8
Anticonvulsants	24.3	23.9	25.9	13.2
Antidepressants	32.9	31.8	37.5	11.4
Antipsychotics	17.7	19.0	11.7	55.9
Bipolar disorder drugs	1.0	1.1	0.8	0.2
Other psychotropic drugs	0.1	0.1	0.1	0.2

Notes: ADHD is attention deficit hyperactivity disorder. FFS is fee for service. MCO is managed care organization. CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

TABLE 5-8. Share of Medicaid Beneficiaries Using Psychotropic Drugs by Drug Class and Eligibility Group, CY 2011

Therapeutic drug class	Total	Children eligible on basis other than disability			Adults eligible on basis other than disability	Children and adults eligible based on disability
		All non-disabled children	Based on child welfare	Other non-disabled basis		
Total	**13.6%**	**5.5%**	**24.4%**	**5.0%**	**20.6%**	**47.7%**
ADHD drugs	2.9	3.3	15.3	2.9	0.7	6.1
Antianxiety drugs	3.5	0.4	1.1	0.3	7.2	14.0
Anticonvulsants	4.9	1.0	5.2	0.8	7.3	23.5
Antidepressants	7.8	1.9	10.0	1.7	14.8	28.1
Antipsychotics	3.3	1.2	10.4	0.9	2.9	17.9
Bipolar disorder drugs	0.3	0.1	0.8	0.0	0.3	1.4
Other psychotropic drugs	0.0	0.0	0.0	0.0	0.0	0.1

Notes: ADHD is attention deficit hyperactivity disorder. CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Because the exclusions listed above result in the majority of enrollees in the aged eligibility category being removed, this category is not displayed separately, but is represented in the total. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

greatest percentage of children eligible on a basis other than disability was the ADHD therapeutic class, at 3 percent; however, the share of children eligible based on child welfare taking ADHD medications was five times that of children eligible on a basis other than disability or child welfare. The antidepressant drug class was the therapeutic class used by the largest percentage of all Medicaid beneficiaries as well as by adults eligible on a basis other than disability (15 percent) and children and adults eligible on the basis of disability (28 percent).

Children

The use of psychotropic medications by children has been of particular interest to policymakers and researchers due to the limited evidence available regarding short- and long-term safety and efficacy of these medications in children (GAO 2012). This concern has been particularly high for children eligible for Medicaid on the basis of child welfare assistance because they often have emotional and behavioral challenges as a result of maltreatment and trauma. Approximately 43 percent of these children received a mental health-related service in 2011 (Chapter 4). There is a high prevalence of behavioral health conditions in this population, and many are treated with psychotropic medications.

We examined the use of psychotropic medications by children under age 21 by their basis of eligibility and age (Table 5-9). Overall, and across all age groups, children eligible on the basis of disability had the highest proportion of psychotropic medication users, followed by non-disabled children eligible based on child welfare. For the older children age 7–18 years, the use of psychotropic drugs among children eligible based on child welfare (32–34 percent) was more similar to that of children eligible on the basis of disability (39–40 percent) than to children eligible on a basis other than disability or child welfare (7–9 percent). Children eligible based on child welfare as well as those eligible based on disability who used psychotropic medications had about 15–16 claims per user. Other children who used psychotropic medications had about half the number of claims per user.

TABLE 5-9. Medicaid Psychotropic Drug Use among Children by Eligibility and Age Group, CY 2011

Age group	Percent using psychotropic drugs			Psychotropic claims per user		
	Based on child welfare, non-disabled	Other non-disabled basis	Based on disability	Based on child welfare, non-disabled	Other non-disabled basis	Based on disability
Total, 0–20 years	**24.6%**	**5.0%**	**34.1%**	**16.0**	**8.2**	**15.1**
0–2 years	1.3	0.3	6.9	8.0	4.3	9.9
3–6 years	8.9	1.8	17.9	10.3	6.3	11.6
7–14 years	31.7	7.8	40.1	16.6	9.0	14.9
15–18 years	34.2	9.1	39.0	16.6	7.8	16.0
19–20 years	20.9	7.9	36.9	14.2	5.6	16.6

Notes: CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. Children eligible on the basis of child welfare include children in foster care, under legal guardianship, and in adoption situations.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

Individuals eligible on the basis of disability

The use of psychotropic medication for beneficiaries who were eligible for Medicaid on the basis of disability differed between children and adults. For these individuals, the use of psychotropic medications generally increased with age.

About one-third (34 percent) of children under age 21 who were eligible for Medicaid on the basis of disability used a psychotropic medication, and children with this eligibility basis had higher rates of psychotropic use than other children across all age groups (Table 5-9). In comparison, when combining the two categories of adults age 21 to 64 years old who were eligible on the basis of disability, 53 percent used a psychotropic medication (Table 5-10), over twice the rate of other adults, who used psychotropic medications at a rate of 21 percent (Table 5-4). Additionally, with 18 claims per user, adults eligible on the basis of disability who used psychotropic medications had twice as many drug claims as other adults, who had nine claims per user (Table 5-10 and Table 5-4, respectively).

Risks of Psychotropic Medications

Psychotropic medications, when prescribed appropriately, are an integral part of current evidence-based treatment for mental illnesses in adults and children (Seixas et al. 2012, Smith et al. 2007). However, there are risks associated with the use of psychotropic medications, and these vary by medication and age group. Second generation antipsychotics (also called atypical antipsychotics), such as Zyprexa and Clozaril, increase the risks of weight gain and metabolic disorders that can lead to diabetes, obesity, heart disease, and other health conditions in adults and children (Musil et al. 2015, De Hert et al. 2011).

Psychotropic medications have been found to pose special risks to children and adolescents.

TABLE 5-10. Psychotropic Drug Use among Individuals Eligible on the Basis of Disability by Age Group, CY 2011

Age group	Enrollees (millions)	Psychotropic drug users (millions)	Psychotropic claims (millions)	Percent using psychotropic drugs	Claims per user
Total	**5.1**	**2.4**	**41.9**	**47.7%**	**17.2**
0–6 years	0.3	0.0^	0.5	14.9	11.4
7–14 years	0.7	0.3	3.9	40.1	14.9
15–20 years	0.5	0.2	3.2	38.2	16.2
21–44 years	1.4	0.7	13.6	50.3	18.7
45–64 years	2.2	1.2	20.6	55.4	17.2

Notes: CY is calendar year. Excludes Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina due to insufficient managed care pharmacy data. Also excludes individuals dually eligible for Medicare and Medicaid, limited benefit enrollees, and full-year institutionalized individuals. The total may not equal the sum of the age groups below because it includes some individuals of unknown ages that are not displayed due to small sample size.

^ Indicates an amount less than 0.05 million that rounds to zero.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System (MSIS) data.

The FDA has not approved atypical antipsychotics for use in children younger than age five and only five atypical antipsychotics are approved for use in children and adolescents older than age five (CMS 2013a).[8] Anticonvulsants, antidepressants, and ADHD medications can increase the risk of suicidal thinking and behavior in adolescents (CMS 2013b, 2013c, 2013d).

Beyond the risks of psychotropic medications associated with adults, some psychotropic medications pose a special risk to elderly adults. Conventional (first-generation) and atypical antipsychotics pose an increased risk of illness and death in older adults with dementia. For this reason, the FDA requires that these drugs be labeled with a boxed warning about the increased risk of death, the strongest warning that a medication can carry and remain on the market (FDA 2008, 2005).

Psychotropic Prescribing Guidelines

Given the risks associated with psychotropic medications, the FDA and professional organizations provide guidance to prescribers about their use. The FDA both approves prescription drugs for sale and provides guidance about the conditions and the age groups for which such drugs are approved. When a physician prescribes a medication for an indication (i.e., use of a drug for treating a particular disease or condition), dose level, or member of a population not specified in the FDA-approved packaging label, the medication is considered to have been prescribed off-label. Because most medications have been tested and approved for adults but not for children, many prescriptions written for children are considered off-label use. While off-label use is considered accepted medical practice in many cases, such off-label prescribing could lead to some children receiving ineffective medications or dosage levels that are too high or too low, or to side effects unique to children, including effects on growth and development (CRS 2012). In rare cases, the FDA may issue a warning that a drug should not be prescribed for particular groups due to potentially lethal side effects (Frank et al. 2014).

Professional organizations issue guidelines for diagnosis and treatment based on the systematic review of scientific evidence, including FDA guidance (IOM 2011). For example, the American Academy of Child and Adolescent Psychiatry (AACAP) has published a series of practice parameters for prescribers on the benefits and risks of prescribing antianxiety medications, antidepressants, antipsychotics, bipolar medications, and psychotropic medications to children and adolescents (AACAP 2012, 2009; Birmaher et al. 2007; Connolly et al. 2007; McClellan et al. 2007). Clinical practice guidelines issued by the American Academy of Pediatrics (AAP) emphasize behavioral therapy as the first choice of treatment for ADHD in children age 4–5, before prescribing psychotropic medication; for children age 6–11, the academy recommends both psychotropic medication and behavioral therapy (AAP 2011).

Evidence of Inappropriate Psychotropic Use

The studies reviewed below suggest that appropriate prescribing practices, that is, adhering to FDA-approved use and accepted clinical guidelines, may not always be followed for certain Medicaid populations. Most of these studies have focused on the high-risk populations of children in foster care and older adults with dementia in nursing homes.

Children

The AACAP and AAP emphasize that psychotropic medications should be used as one component of a comprehensive treatment plan that includes effective psychosocial, psychotherapeutic, and

behavioral treatments such as outpatient therapy and trauma-focused care (AACAP 2012, 2009; AAP 2011). One study found that almost half of the children in Medicaid who were prescribed a psychotropic medication did not have any identifiable concomitant behavioral health treatment (CHCS 2013).

Some studies focusing on all Medicaid-enrolled children have found high use of multiple psychotropic medications and increased risk of diabetes as a result of antipsychotic use (Bobo et al. 2013, Constantine et al. 2011). Another study found quality-of-care concerns in two-thirds of claims for atypical antipsychotics prescribed to children covered by Medicaid (OIG 2015). Because antipsychotics are associated with increased risk of weight gain and metabolic disorders that can lead to diabetes, obesity, and heart disease, laboratory monitoring before and during use is recommended. However, studies have shown that rates of recommended laboratory monitoring are lower among children and adolescents than among adults (Morato et al. 2010, Essock et al. 2009, Haupt et al. 2009).

Children in foster care. Many of the studies on psychotropic use by Medicaid-enrolled children have been focused on foster children because these children have high rates of behavioral health conditions and most of these children are enrolled in Medicaid (Allen and Hendricks 2013). A study on psychotropic medications provided to foster children in Medicaid in six states in 2008 (Florida, Maryland, Massachusetts, Michigan, Oregon, and Texas) found that all states fell short in the areas of consent, oversight, consultation, and information as described in the AACAP's best principles guidelines (GAO 2012). Other studies have found that some foster children are prescribed two or more antipsychotics, often without the prescriber trying one antipsychotic at a time first (dosReis et al. 2011, Gören et al. 2008, Zito et al. 2008).

Adults

Fewer studies have focused on adults enrolled in Medicaid. A few studies have found that adult Medicaid enrollees are receiving multiple psychotropic medications or receiving psychotropic medications for potentially off-label use (Essock et al. 2009, Leslie and Rosenheck 2012, Rigler et al. 2009). Medicaid-enrolled adults in residential care facilities have also been found to have high rates of polypharmacy and poor management of antipsychotic medication (OIG 2009, Lakey et al. 2006).

Adults in nursing homes. An estimated 8 percent of all nursing home residents had inappropriate psychotropic medication use as indicated by high dose, unjustified long-term use, incorrect medication for a particular diagnosis, and duplicative medication therapy in 2000 (OIG 2001). A study of nursing home residents in eight states from 1999 and 2006 found that most of the antipsychotic use was for residents without an FDA diagnostic indication (Crystal et al. 2009). Another study of older adults in nursing homes who were eligible for Medicaid and Medicare found an increased risk of death for those on conventional antipsychotic medications when compared with atypical antipsychotics, supporting the FDA boxed warnings that conventional antipsychotics share the increased risk of death that has been observed for the atypical ones (Aparasu et al. 2012).

Activities to Improve Use of Psychotropic Medications

Federal agencies and states have implemented several activities designed to improve prescribing practices for psychotropic medications. These include drug utilization review and monitoring, performance measurement, informed consent, prescriber education and consultation, and prior authorization for prescriptions that do not conform to clinical guidelines. Because the risks

of psychotropic medication use are increased for children and older adults, policymakers have also targeted quality improvement activities specifically for these populations. Activities are particularly focused on children in foster care and elderly adults with dementia in nursing facilities because of their high rates of behavioral health conditions and psychotropic use.

Federal activities

The Centers for Medicare & Medicaid Services (CMS) has multiple activities to monitor and measure the use of psychotropic medications by Medicaid beneficiaries. CMS has established the Medicaid Drug Utilization Review program, which requires states to report on the prescribing habits of Medicaid participating providers, on patient safety, and on state-administered utilization management tools and systems.[9] As part of the annual Drug Utilization Review report, states must provide information about their programs and policies for ensuring the appropriate use of psychotropic medications (CMS 2014a). For example, the Drug Utilization Review State Comparison/Summary Report for federal fiscal year 2013 shows that 41 states have programs in place to monitor the use of psychotropic medications in children, with 37 states monitoring all children and not just those in foster care (CMS 2014b). CMS and the Agency for Healthcare Research and Quality (AHRQ) funded the National Collaborative for Innovation in Quality Measurement, a center of excellence, to develop a set of performance measures to assess the use of antipsychotic medications in children and adolescents (AHRQ 2014). They also jointly funded the voluntary Pediatric Quality Measures Program (PQMP) that included a follow-up measure of care for children prescribed ADHD medications (CMS 2014c, 2011a). CMS has worked with other federal agencies such as the Administration for Children and Families (ACF) and the Substance Abuse and Mental Health Services Administration (SAMHSA) to strengthen oversight and monitoring of psychotropic medication use among children.

State activities

States are also undertaking efforts to ensure that psychotropic medications are used appropriately. For example, state Medicaid programs have implemented the following initiatives to improve psychotropic prescribing practices:

- **Prior authorization and peer review.** In most states, Medicaid programs use prior authorization to prevent prescriptions that do not conform to standard clinical guidelines from being filled at the pharmacy without further review and approval. A recent study found that 31 states have implemented prior authorization policies for atypical antipsychotic prescriptions to children, and 15 states have incorporated a peer review process (Zito et al. 2015). For example, Maryland Medicaid uses a prior authorization process when antipsychotics are prescribed to children under 18 years of age who are younger than the FDA-approved age for that medication; before the drugs are dispensed by the pharmacy, a peer review must be completed by either a clinical pharmacist or a child psychiatrist (MDHMH 2014). Washington Medicaid requires a second opinion from a community psychiatrist when prescriptions for ADHD medications exceed consensus-defined safety thresholds (PALW 2014).
- **Informed consent requirement from parents, guardians, or state child welfare representatives when children are prescribed psychotropic medications.** Florida Medicaid will not pay for antidepressants, antianxiety medications, mood stabilizers, or psychotropic medications for children under 13 years of age without the informed consent of a parent or legal guardian (FM 2012).
- **Distribution of utilization management reports and performance report cards to providers.** Utilization reports and report

cards are meant to improve prescribers' awareness of their own practices and how they compare to peers. Missouri Medicaid distributes utilization management reports that analyze psychotropic medication prescription patterns for children and adults at the individual provider and agency levels (MDMH 2014).

- **Educational efforts and consultation services that provide expert advice to primary care doctors and other prescribers on the complexities of prescribing psychotropic medications.** Since 2003, Massachusetts Medicaid has run the Massachusetts Child Psychiatry Access Project to provide telephone consultative support by child psychiatry specialists to pediatricians about Medicaid enrollees and patients insured by other payers (MCPAP 2014). The primary care provider may be referred to a face-to-face consultation with the MCPAP child psychiatrist if further support is needed.

Activities focused on children in foster care

Due to the emotional and behavioral challenges and high rate of psychotropic use among children in foster care, and because children in foster care are in the custody of the state, this population has received specific attention from federal and state agencies. Creating, coordinating, and implementing monitoring protocols to ensure appropriate prescribing of medication to children in child welfare requires the participation of various agencies, such as child welfare, Medicaid, and mental health systems, as well as their associated contractors (e.g., health plans). These initiatives are frequently joint efforts.

Federal activities. Concern about the safe, appropriate, and effective use of psychotropic medications among children in foster care has prompted CMS, ACF, and SAMHSA to coordinate initiatives across agencies (CMS 2011b). Examples of federal activities that focus on improving psychotropic prescribing patterns for these children include the following:

- The Fostering Connections to Success and Increasing Adoptions Act of 2008 (P.L. 110-351) created a requirement for a health oversight and coordination plan between child welfare and Medicaid that includes oversight of prescription medications. Enacted in 2011, the Child and Family Services Improvement and Innovation Act (P.L. 112-34) built upon this requirement by specifying that the health oversight and coordination plan must explicitly address the oversight of psychotropic medications. State child welfare agencies must include in their annual progress and services reports descriptions of state efforts to monitor the use of psychotropic medications by foster children (ACF 2012).
- In 2012, CMS, SAMHSA, and ACF issued an informational bulletin that informed states about strategies and resources to improve the management of psychotropic medications in vulnerable Medicaid populations. That same year, these agencies convened a working meeting to bring together representatives from state child welfare, Medicaid, and mental health systems from all 50 states and the District of Columbia and Puerto Rico to provide an opportunity for state leaders to exchange information on state and local initiatives and facilitate development and implementation of oversight plans (CMS 2012).
- In 2014, CMS issued an informational bulletin that provided a summary of state programs that address the use of psychotropic medications for children in foster care. The bulletin highlighted programs that utilize a comprehensive,

collaborative approach to oversight of the use of psychotropic medications in these children and provided links to these programs as well as to resources from AACAP, ACF, and AHRQ (CMS 2014d).

- The proposed fiscal year 2016 budget for the U.S. Department of Health and Human Services (HHS) includes a five-year demonstration between CMS and the ACF to encourage states to implement evidence-based psychosocial interventions targeting children and youth in the child welfare system as an alternative to the use of psychotropic medications (HHS 2015).

State activities. Many state Medicaid programs, in part due to federal prioritization of children in foster care, are also focused on improving psychotropic medication prescription practices for this population. For example:

- Connecticut Medicaid requires that prescribers of psychotropic medications obtain informed consent for children in foster care under age 18 from the child welfare agency (DCF 2010).
- Illinois Medicaid employs a board-certified psychiatric consultant to review all psychotropic medication requests for children in foster care that fall within set parameters of medication type, age, and dosage and to formulate guidelines about the administration of psychotropic medications to children in child welfare (JCAR 2012).
- The Texas Department of Family and Protective Services (DFPS), Department of State Health Services (DSHS), and Health and Human Services Commission (HHSC) have released a resource guide that provides recommendations for the appropriate use of psychotropic medications for children in foster care; it includes nine situations that indicate a need for a further review of the child's clinical status (DFPS 2013).

Activities focused on adults in nursing homes

The federal government has a longstanding and continuing concern about excessive use of medications for adults in nursing homes. As part of the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203), Congress passed the comprehensive Nursing Home Reform Act (NHRA) that mandated nursing home residents be free from "physical or chemical restraints imposed for the purposes of discipline or convenience." In response to the NHRA, CMS and states have developed programs aimed at reducing the use of psychotropic medications in nursing homes.

Federal activities. In 2012, CMS established the National Partnership to Improve Dementia Care with the initial goal of reducing the use of antipsychotic medications in residents of long-stay nursing homes by 15 percent nationally (CMS 2012). The partnership led to the formation of coalitions of consumers, state agencies, quality improvement organizations, advocacy organizations, nursing home staff, and professional associations to improve dementia care in every state. The partnership distributed educational materials to all nursing homes and also developed a website that offers training and other educational materials (Bonner 2013). In 2014, CMS announced it met its initial goal in reducing antipsychotic medication use in residents of long-term nursing homes and set new goals of a 25 percent reduction, as compared to the 2011 baseline, by the end of 2015 and a 30 percent reduction by the close of 2016 (CMS 2014e).

State activities. All state Medicaid agencies are involved in coalitions to improve the appropriate administration of antipsychotics to nursing home residents in response to the National Partnership to Improve Dementia Care (Bonner 2013). Examples

of state initiatives to improve the appropriate use of antipsychotics in nursing home residents include the following:

- Ohio Medicaid is part of a coalition to reduce antipsychotic use by providing data and feedback reports to nursing homes (OSU 2014).
- Washington Medicaid contracts with the University of Washington to create prescriber feedback reports on clinical quality indicator flags such as dosage levels above the FDA maximum and polypharmacy, including physicians treating Medicaid enrollees in institutional care (WSHCA 2014).
- Connecticut Medicaid is part of a coalition that operates a website to provide resources to nursing homes to improve antipsychotic prescribing (CCC 2014).

Looking Forward

The Commission will continue to explore issues related to the use of psychotropic medications among Medicaid beneficiaries and whether these drugs are being prescribed appropriately. We will examine the use of psychotropic medications at the individual level to identify occurrences of potential overuse, polypharmacy within and across psychotropic drug classes, excessive duration or doses, and other prescribing patterns that may reflect the inappropriate use of psychotropic medications. The Commission will also continue to review federal and state activities that are focused on ensuring the appropriate use of psychotropic medications in the Medicaid population. Future analyses may also review psychotropic medication utilization across states, which, in conjunction with a review of state psychotropic medication policies, may help identify states that have been able to improve psychotropic prescribing patterns.

Endnotes

[1] The 2011 pharmacy spending is only for prescriptions covered through FFS arrangements because managed care encounter data do not include payment information.

[2] Psychotropic drugs are also used to treat conditions that are not related to mental illness. For example, Cymbalta, a commonly prescribed antidepressant, is sometimes used to treat fibromyalgia and chronic musculoskeletal pain.

[3] Reasons for exclusion can be found in Appendix 5B.

[4] In general, a drug manufacturer must enter into a Medicaid drug rebate agreement with the U.S. Department of Health and Human Services in order for its products to be eligible for federal funding under Medicaid. Drug manufacturers pay a statutorily defined rebate to Medicaid for drugs from their portfolios that are dispensed to Medicaid enrollees. In addition, manufacturers may negotiate supplemental rebate agreements with states to ensure that their products get placed on a state's preferred drug list. These supplemental rebates may differ from state to state. Overall, total drug rebates were just over 50 percent of gross (pre-rebate) drug spending in fiscal year 2011 (MACPAC 2012b).

[5] There are different ways to characterize duration of psychotropic drug use. Our analysis looks at the number of months that an individual had a psychotropic drug claim, which does not take into account whether a claim was for a prescription that covered more than one month (e.g., a 90-day supply).

[6] A study of Medicaid enrollees, excluding dually eligible enrollees, using the Medicaid Analytic Extract (MAX) files found that antipsychotics accounted for 15 percent of total Medicaid drug expenditures for all beneficiaries in 2009 and for 25 percent of the total growth in these expenditures between 1999 and 2009 (Verdier and Zlatinov, 2013).

[7] MACPAC analysis of 2009 MSIS data. Abilify, Seroquel, and Zyprexa were the top three drugs in terms of FFS drug spending in 2009, accounting for 11.2 percent of total FFS drug expenditures. In 2011, these three drugs accounted for over $3.2 billion in FFS spending, over 11 percent of total FFS drug expenditures.

[8] The five atypical antipsychotics that currently have FDA-approved indications for use in children and adolescents are Aripiprazole (Abilify), olanzapine (Zyprexa), paliperidone (Invega), quetiapine (Seroquel), and risperidone (Risperdal).

[9] As part of the Drug Utilization Review program, states describe their process of identifying problems such as therapeutic duplication, drug-disease contraindications, incorrect dosage or duration of treatment, drug allergy, and clinical misuse or abuse. States also examine past claims data to identify patterns of fraud, abuse, gross overuse, or medically unnecessary care.

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APPENDIX 5A: Psychotropic Drugs Included in MACPAC Analysis

TABLE 5A-1. Psychotropic Drug Classes and Representative Drugs

Therapeutic Drug Class	Generic Drug Name (Brand Name)
Attention deficit hyperactivity disorder drugs	Armodafinil (Nuvigil), atomoxetine hydrochloride (Strattera), clonidine hydrochloride (Kapvay), dexmethylphenidate hydrochloride (Focalin), guanfacine hydrochloride (Intuniv), lisdexamfetamine dimesylate (Vyvanse), methylphenidate hydrochloride (Concerta), modafinil (Provigil)
Antianxiety drugs	Alprazolam (Xanax), buspirone hydrochloride (Buspar), chlordiazepoxide hydrochloride (Librium), clorazepate dipotassium, diazepam (Valium), lorazepam (Ativan), meprobamate, oxazepam
Anticonvulsants	Carbamazepine (Tegretol), clobazam (Onfi), clonazepam (Klonopin), diazepam (Diastat), divalproex sodium (Depakote), ethosuximide (Zarontin), ethotoin (Peganone), felbamate (Felbatol), fosphenytoin sodium (Cerebyx), gabapentin (Neurontin), lacosamide (Vimpat), lamotrigine (Lamictal), levetiracetam (Keppra), mephobarbital (Mebaral), methsuximide (Celontin), oxcarbazepine (Trileptal), phenytoin (Dilantin), pregabalin (Lyrica), primidone (Mysoline), rufinamide (Banzel), tiagabine hydrochloride (Gabitril), topiramate (Topamax), valproate sodium (Depakene), vigabatrin (Sabril), zonisamide (Zonegran)
Antidepressants	Amitriptyline hydrochloride, amoxapine, bupropion hydrochloride (Wellbutrin), citalopram hydrobromide (Celexa), clomipramine hydrochloride, desipramine hydrochloride (Norpramin), desvenlafaxine succinate (Pristiq), doxepin hydrochloride, duloxetine hydrochloride (Cymbalta), escitalopram oxalate (Lexapro), fluoxetine (Prozac), fluvoxamine maleate (Luvox), imipramine, isocarboxazid (Marplan), maprotiline hydrochloride, mirtazapine (Remeron), nortriptyline hydrochloride (Pamelor), nefazodone hydrochloride, paroxetine (Paxil), phenelzine sulfate (Nardil), protriptyline hydrochloride (Vivactil), selegiline (Emsam), sertraline (Zoloft), tranylcypromine sulfate (Parnate), trazodone (Oleptro), trimipramine maleate (Surmontil), venlafaxine hydrochloride (Effexor), vilazodone hydrochloride (Viibryd)
Antipsychotics	Aripiprazole (Abilify), asenapine maleate (Saphris), chlorpromazine hydrochloride, clozapine (Clozaril), droperidol (Inapsine), fluphenazine, haloperidol (Haldol), iloperidone (Fanapt), loxapine succinate (Loxitane), lurasidone hydrochloride (Latuda), molindone hydrochloride (Moban), olanzapine (Zyprexa), palperidone (Invega), perphenazine, pimozide (Orap), quetiapine fumarate (Seroquel), risperidone (Risperdal), thioridazine hydrochloride, thiothixene (Navane), trifluoperazine hydrochloride, ziprasidone (Geodon)
Bipolar drugs	Carbamazepine (Equetro), lithium carbonate
Other psychotropic drugs	Amitriptyline hydrochloride and chlordiazepoxide (Limbitrol), olanzapine and fluoxetine hydrochloride (Symbax), perphenazine and amitriptyline hydrochloride

Notes: Psychotropic drugs were identified using drug and therapeutic class information from the First Databank FDB MedKnowledge drug compendium. Drugs in the general therapeutic class of psychotropic drugs were included in the analysis. Specific drug class and drug name were used to further classify drugs into broad categories: medications for attention deficit hyperactivity disorder, antianxiety drugs, antidepressants, antipsychotics, bipolar disorder drugs, and other psychotropic drugs. Drugs with the specific drug class of anticonvulsants also were included in this analysis because they may be used for the treatment of bipolar disorder. Other research and analyses may use different selection criteria for psychotropic medications.

Source: MACPAC analysis of 2011 Medicaid Statistical Information System data and First Databank FDB Medknowledge database.

APPENDIX 5B: Analysis Methodology

MACPAC conducted an analysis of outpatient pharmacy data in the Medicaid Statistical Information System (MSIS), a federal source of administrative data that provides demographic, spending, service use, and other enrollment-related information on all individuals enrolled in the Medicaid program. We calculated baseline statistics on the number of users, number of prescription drug claims, and spending for psychotropic drugs by eligibility group (non-disabled child, non-disabled adult, disabled under age 65, and age 65 or older), age group, and therapeutic drug class. Due to the differences in psychotropic utilization for children eligible on the basis of child welfare assistance, the children who are eligible on a basis other than disability were further separated into eligible based on child welfare and other non-disabled basis of eligibility. Children eligible on the basis of child welfare assistance include children in foster care or under legal guardianship and children receiving adoption assistance (Chapter 3).

Data. Our study examined MSIS data for 2011, the most recent year of complete MSIS data available for all states. The MSIS data were linked to drug identification and classification data from the First Databank FDB MedKnowledge drug compendium to provide information on drug name, brand/generic status, and therapeutic classification. The analysis focused on outpatient pharmacy services; any drug that was provided and billed as part of another service, such as an inpatient hospital stay or nursing facility day, was not included in the analysis. Drug claims were defined by a combination of beneficiary ID, billing provider ID, prescription fill date, and national drug code. A user was defined as an enrollee with at least one claim for a psychotropic medication, or at least one prescription in a particular drug class when usage was examined at the drug class level.

The analysis included fee-for-service (FFS) as well as managed care organization (MCO) encounter claims. Measures of utilization, such as counts of users and drug claims, combine FFS and MCO encounter data. Because MSIS managed care encounter claims do not report payment amounts, any spending information presented is for only those claims paid for through FFS arrangements. The FFS drug spending in MSIS, and presented in this analysis, reflects the states' payments to pharmacies before the application of any drug rebates.

Psychotropic medications were identified based on drug identification and therapeutic class information from First Databank. Drugs with a general therapeutic class of psychotropic drugs were included in the analysis. Specific drug class and drug name were used to further classify drugs into broad categories: medications for attention deficit hyperactivity disorder (ADHD), antianxiety drugs, antidepressants, antipsychotics, bipolar disorder drugs, and other psychotropic medications (Appendix 5A, Table 5A-1). Drugs in the specific drug class of anticonvulsants were also included in this analysis because they are used frequently for the treatment of bipolar disorder. Although sedatives and hypnotics may be used for psychotherapeutic indications, most of the drugs in this class are typically used to treat insomnia and were not included in this analysis. Additionally, medications used to assist in the treatment of substance abuse were not included, in part because many of these drugs are also prescribed as analgesics. When these medications, such as methadone, are used to assist in the treatment of substance abuse, they are frequently administered by providers at clinics or treatment centers, rather than being dispensed to beneficiaries at pharmacies, and are more difficult to identify in claims data.

With the exception of calculations for Table 5-1, we excluded individuals in a few eligibility categories that are characterized by limited coverage of outpatient prescription drugs through Medicaid. Additionally, we excluded a few states that

appeared to have incomplete pharmacy encounter data submissions for 2011 (see state exclusion section below).

Population exclusions. In general, the analysis included individuals with at least one month of full-benefit Medicaid enrollment and zero months of dual-eligible enrollment. We excluded individuals dually eligible for Medicare and Medicaid because the majority of their prescriptions are obtained through the Medicare Part D benefit and not through Medicaid. We excluded limited benefit enrollees as they may have limited or no coverage of outpatient prescription drugs. We also excluded individuals who resided in an institution throughout the year (e.g., nursing facility) because their medications are often covered through the facility payment and do not generate a pharmacy claim. Of an initial pool of 72 million enrollees, approximately 16.8 million enrollees were excluded from the analysis.

State exclusions. Based on MACPAC's knowledge of the completeness of encounter data within MSIS and an analysis of prescriptions per enrolled month for both FFS and encounter pharmacy claims at the state level, we excluded Hawaii, Massachusetts, Nevada, Pennsylvania, and South Carolina from the analysis for not having sufficient pharmacy encounter data in 2011. An additional 4.1 million enrollees from these five states were dropped from the analysis. Eighteen states have separate behavioral health managed care plans that our prior work on MCO encounter data did not include, so we did not have prior benchmarks with which to compare. We did not know the extent to which these behavioral health plans might pay for behavioral health drugs. The majority of these states did appear to have psychotropic utilization rates across FFS and managed care that were similar to the rates in other states, so we retained them in the analysis unless they were one of the five states already excluded for not having sufficient pharmacy data. The 18 states that have separate behavioral health plans are Arizona, Colorado, Florida, Hawaii, Iowa, Kansas, Massachusetts, Michigan, North Carolina, Nebraska, New Mexico, Oregon, Pennsylvania, Tennessee, Texas, Utah, Washington, and Wisconsin.