Use of Psychoactive Medication in Texas Foster Children State Fiscal Year 2005

Prepared by the Health and Human Services Commission, Department of State Health Services, and Department of Family and Protective Services

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Table of Contents

Introduction

Concerns were raised regarding the use of psychotropic medications in Texas foster children after the release of an Office of Inspector General (OIG) report in September 2004. Since then, the Texas Health and Human Services Commission (HHSC), the Department of State Health Services (DSHS), and the Department of Family and Protective Services (DFPS) have implemented a number of strategies to get a more detailed assessment of the problem and to assist providers in utilizing psychoactive medication appropriately.

In February 2005, as part of the effort to assist providers, DSHS released best practice guidelines for healthcare providers entitled *Psychotropic Medication Utilization Parameters for Foster Children*. The guidelines were developed by a panel of child and adolescent psychiatrists, psychologists, guideline development specialists, and other mental health experts for use in the treatment of foster children who receive services through Texas Medicaid. The guidelines provide parameters for the appropriate use of psychotropic medication in foster children and also alert clinicians to seven criteria, or situations, that indicate a need for further review of a patient's case. Since releasing the guidelines, State staff has worked with individual providers whose patients' medication regimens fall outside the guidelines to encourage proper prescribing.

This report outlines an additional analysis that has been done on prescribing psychoactive medication to Texas foster children for state fiscal year 2005 (September 1, 2004 through August 31, 2005). HHSC, DSHS and DFPS conducted this analysis because psychoactive medication prescribing to foster children continues to be higher on average than to other Medicaid children.

The analysis is based on Medicaid prescription and medical claims data. It includes three of the largest psychoactive drug classes (stimulants, antidepressants and antipsychotics), along with all other drug classes classified as psychotropic medications in the 2006 DSHS Formulary (e.g. mood stabilizers, sedatives/hypnotics). The DSHS Formulary is included as Appendix B.

The analysis focuses on children who received psychoactive medication for 60 or more days. Psychoactive medications initially are given on a trial basis to determine if the drug will be effective and well tolerated. Since Medicaid doctors typically write prescriptions for 30 days, one can't tell from a single claim whether a child actually took the drug for 30 days or for just a few days. For this reason, the analysis focuses on children who received psychoactive medication for 60 or more days to indicate that the child was likely on the medication beyond an initial trial period.

A full description of the methodology used in the analysis is included in the Methodology section at the end of this report.

Analysis of the Use of Psychoactive Medication in Texas Foster Children

This analysis examines psychoactive medication prescriptions for foster children in terms of DSHS' prescribing guidelines. The new prescribing guidelines use seven criteria to indicate the need for further review of a patient's case. The analysis focuses on four of the seven criteria outlined in the guidelines.

- Absence of a mental health diagnosis
- Five (5) or more psychotropic medications prescribed concurrently
- Prescribing two or more medications from the same drug class concurrently
- Prescribing psychotropic medications for very young children

The other three criteria were not explored in-depth at this time, as it may be more appropriate to analyze these data once foster children are enrolled in the new comprehensive healthcare program for foster children. These criteria are: the prescribed medication is not consistent with the patient's diagnosis; psychotropic polypharmacy for a given mental disorder is prescribed before utilizing psychotropic monotherapy; and the psychotropic medication dose exceeds usually recommended doses.

Data Summary – Foster Children

Table 1 provides a summary of psychoactive medication use in foster children in state fiscal year (FY) 2005. Of 37,052 foster children ages 0-17 who were eligible for Texas Medicaid at some point during FY 2005, 12,842 (34.7 percent) received a psychoactive medication, and 9,740 (26.3 percent) received a psychoactive medication for at least 60 consecutive days. As shown in Table 1, the use of psychoactive medication increases with age, from less than 1 percent of foster children under age 3 to 51.8 percent of foster children ages 13-17. Prescribing of psychoactive medication to foster children is much more common than prescribing to other Medicaid children, which reflects the fact that many of them have complex behavioral health care conditions and they also may be dealing with the trauma of difficult family situations and being removed from their families.

Absence of a mental health diagnosis in the child's Medicaid medical record.

Although the Medicaid claims data cannot provide information about the quality of an assessment, nor match the prescriber with the clinician making the diagnosis, it does indicate whether a psychiatric diagnosis was made at any time during the year. Service claims data was matched with prescription data in order to determine whether a child was assessed and given a mental health (MH) diagnosis during the year. See the Methodology section and Appendix A for a description of the MH diagnoses used.

Lack of a mental health diagnosis is more common in younger children and in those who were prescribed medications for less than 60 days. As noted in Table 1, slightly more than one quarter of all young children ages 2 years or younger who got any psychoactive prescriptions received no mental health diagnoses. However, the percentage with no

diagnosis was much lower for children in this age group who received 60 consecutive days or more of any psychoactive medication; only slightly more than one tenth these children received no MH diagnoses. There are a greater number of MH diagnoses for the older age groups, which reflects the higher rate of psychiatric problems as children age as well as the recognition of these problems by clinicians.

Often, prescriptions shorter than 60 days are given for non-psychiatric indications, written by non-psychiatrists, and address short-lived problems associated with other medical conditions that are more pressing or deemed primary. Prescriptions given for 60 days or longer likely represent problems perceived to be psychiatric in nature and this is reflected in the higher rate of diagnosis for this subset.

Confounding factors that would lower the apparent rate of diagnosis include the perception by some primary care clinics and practices in the community that if they list a MH diagnosis on the claim they will either not be paid or be paid at a lower rate for their service. Although this is inaccurate, this perception may limit the number of MH diagnoses. Also, many practitioners choose not to participate in the Medicaid program due to the Medicaid payment scale and administrative requirements. These practitioners may still see Medicaid patients, but if they never bill for their services, any associated diagnoses never show up in the data.

Table 3 shows the top ten most common diagnoses in each age grouping for children who received psychoactive medication for 60 days or longer.

Five or more psychotropic medications prescribed concurrently.

A total of 396 of 37,052 foster kids, or 1.1 percent, received five or more medications concurrently for a period of 60 days or longer in FY 2005**.** The numbers of children taking five or more medications concurrently increases with age. No children ages 0 to 3 years of age received five psychoactive medications concurrently in FY 2005, and 6 children ages 4 to 5 fell into this category. Older children are known to more commonly suffer from Bipolar Disorder and Schizophrenia, and therefore, are more likely to be prescribed five or more medications. Of the older children receiving five or more drugs at the same time, 217 were ages 13-17 and 174 were ages 6-12. The following scenario could lead to the prescription of five or more medications: A child is diagnosed with Attention Deficit Hyperactive Disorder (ADHD) and Bipolar Disorder, and is receiving a stimulant for the ADHD, lithium and another mood stabilizer for mania prophylaxis, an antidepressant for depression, and an antipsychotic for mania prophylaxis, aggression, and psychosis.

Concurrent prescribing of three or more mood stabilizers, or two or more medications from one of the following drug classes: antidepressants, antipsychotics, or stimulants.

Prescribing two or more medications from the same drug class concurrently is referred to as "class polypharmacy." As shown in Table 1, this is very uncommon for children ages 0 to 3. It becomes increasingly common in the older age groups. Table 2 lists the drug

classes for which class polypharmacy among foster children was most common. The most common class where two or more medications are prescribed concurrently are the antidepressants, which may reflect the common practice whereby the antidepressants trazodone and mirtazepine are commonly used as sleeping agents to deal with the insomnia caused by Selective Serotonin Reuptake Inhibitor (SSRI) antidepressants. When used this way, they are commonly prescribed at much lower doses than those used to treat depression. This practice is widespread and well accepted by the profession for adults, and increasingly accepted for younger patients; however the practice is not well studied. Antipsychotics are the second most commonly prescribed class involved in class polypharmacy and, although increasingly common, using two or more antipsychotics at the same time is not accepted by the experts or validated in general by the data that exists.

Prescribing of certain psychotropic medications are prescribed to very young children: antidepressants and antipsychotics to children less than 4 years old, and psychostimulants to children less than 3 years old.

Table 1 shows that of foster children ages 0-2, 86 (0.8 percent) received a psychoactive medication for 60 days or more. A child's age was determined by his/her age in months at the beginning of the fiscal year, and the 0-2 age group includes all children under age 3 (children up through the end of the 35th month after birth). Most of the 86 children in this group who received psychoactive medications were between 2 and 3 years old. The most common psychoactive medications prescribed to this age group for 60 or more days were clonidine and diphenhydramine (Benadryl), both of which were probably prescribed to treat a child who is not sleeping or whose behavior is difficult to control.

The treatment of 3 year olds with stimulants is well accepted by the medical profession. Of the 200 3-year olds who received psychoactive medications in FY 2005, 174 received a medication other than a stimulant. The most common medications prescribed to this group were clonidine and risperidone. The risperidone is likely used to treat aggression, and clonidine is probably being used to calm or help a child sleep.

Data Summary – Physicians

As noted in Table 4, there were 2,651 unique clinicians who prescribed psychoactive medication to a foster child during FY 2005. Of these clinicians, 2,110 prescribed medication for 60 days or longer. Of these 2,110 prescribers:

- 88 were associated with the 86 children ages 0 to 2 who received any psychoactive medication for 60 days or longer while 158 were associated with the similar age 3 group;
- 677 were associated with a child who was taking two or more drugs in the same class concurrently for 60 days or longer; and
- 264 were associated with a child who was prescribed five or more medications concurrently for 60 days or longer.

Table 5 provides further detail on the 264 physicians associated with a child who was prescribed five or more medications concurrently. Most of these physicians (54.2 percent) were associated with only one patient who received five or more concurrent medications; and 90 percent of them had nine patients or less on five or more concurrent meds. There were 26 physicians who were associated with 10 or more children on five or more medications concurrently. All of these physicians had psychiatric certification and/or training, and likely take care of foster children with the most complex behavioral health needs.

Trends in Prescribing Practices Since the Release of the *Psychotropic Medication Utilization Parameters for Foster Children*

DSHS released the *Psychotropic Medication Utilization Parameters for Foster Children* on February 15, 2006, almost halfway through state fiscal year 2005. In order to assess whether there were changes to prescribing patterns after the guidelines were issued, staff compared claims data five months before the release of the guidelines (September 2004 through January 2005) with five months after (April 2005 through August 2005). February and March were excluded, as these were transition months during which doctors would be adjusting their practices and clients would need time to make appointments to see their doctors after the guidelines were issued.

As Table 6 shows, psychoactive medication prescribing trends for Medicaid foster children decreased in the five months following the release of the guidelines. In particular, polypharmacy within a drug class decreased by 28.7 percent, prescribing five or more medications at the same time decreased by 30.9 percent, and prescribing to children without a mental health diagnosis decreased by 21.8 percent.

A number of factors may have contributed to the decreased trend in prescribing, including the release of the DSHS guidelines, heightened questioning of prescribing by caseworkers and judges, general media attention to the issue, and the fact that less psychiatric treatment is sought in the summer.

Discussion

It is tempting to make assumptions that these data show poor prescribing practices and children being overmedicated, however, caution needs to be exercised in singling out practitioners. The following points need to be kept in mind.

1. These patients are complex, high-risk, frequently in crisis and without detailed medical information about their diagnoses and treatments, in the company of stressed caregivers, and it takes a lot of time to successfully address their needs.
2. Few child psychiatrists accept Medicaid foster children as patients, possibly due to their complex needs along with the program's reimbursement rates and administrative requirements.

3. A relatively small number of clinicians treat these patients and if singled out they may decide not to do this work any longer.
4. Studies on changing physician prescribing behavior have regularly shown poor results with interventions focused solely on education and training. Those few studies showing impact were highly targeted and involved other practitioners (e.g. pharmacists) who question the prescribing as it happens.
5. A great deal of the prescribing may represent a lack of access to other treatments in a short timeframe, or if other treatments exist, a lack of understanding that such services are available or how to access them.
6. Good non-pharmacological treatment takes time and time is sometimes the one thing no one has because a placement is in jeopardy due to a child whose behavior is out of control.
7. Physician service patterns of all types are highly responsive to regulatory incentives that impact payment.

Next Steps

The Texas health and human services agencies will continue to work to encourage doctors to follow the prescribing guidelines for Medicaid foster children.

- The State plans to provide a summary of this data analysis to doctors who care for Texas foster children and request that they review their practices based on the analysis and the guidelines.
- The State also will focus on one or more of the criteria, such as the concurrent prescribing of five or more medications to a child. We will develop strategies to work with prescribers who meet this criterion, and especially the top 10 percent of prescribers, to better understand the specific problems they are trying to solve with so many medications and discuss possible alternative solutions.

Comprehensive Healthcare Program for Foster Care

HHSC, DFPS, DSHS and the other Texas health and human services agencies have been working together to develop a comprehensive healthcare program for foster children.

- Currently, Medicaid foster children are served through the traditional Medicaid fee-for-service model, in which they do not have a primary care physician or coordination of their physical and behavioral health care needs.
- HHSC will contract with a vendor to manage the new comprehensive healthcare program for foster children, which will be operational on or after July 1, 2007.
- Once the program is in place, one of the vendor's responsibilities will be to work with providers to encourage appropriate prescribing of psychoactive medication for foster children.

Table 1. Summary of Psychoactive Medication Use in Foster Care Children for FY 2005

Age	0 – 2	%	3	%	4 – 5	%	6 – 12	%	13 – 17	%	0 – 17	%
Total Foster kids[1]	11261	30.4 100	2196	5.9 100	3955	10.7 100	10648	28.7 100	8992	24.3 100	37052	100
Got psy meds[2]	443	3.9	424	19.3	1288	32.6	5892	55.3	5982	66.5	12842	34.7
Got meds ≥ 60 d[3] (non-stimulant)[4]	86	0.8	200 (174)	9.1 (7.9)	794	20.1	4519	42.4	4662	51.8	9740	26.3
Class poly[5]	1	0.0	3	0.1	39	1.0	569	5.3	883	9.8	1481	4.0
≥5 meds[6]	0	0	0	0	6	0.2	174	1.6	217	2.4	396	1.1
No MH dx (all)[7]	119	26.9	30	7.1	51	4.0	141	2.4	151	2.5	476	3.7
No MH dx ≥ 60d[8] (non-stimulant)	9	10.5	6 (6)	3.0 (3.4)	11	1.4	50	1.1	63	1.4	134	1.4

1. Total kids in each group is taken from the FY 2005 Medicaid Eligibility File and is determined by the age of the kid in months at the beginning of the fiscal year. For example, zero to two includes up through the end of the 35th month after birth.

2. A child was considered to have gotten a psychoactive medication if any medication on the attached list was prescribed (filled and paid) at any time during the year in question. If the child got any psychoactive medication that can also be used as an anti-seizure medication or as a treatment for allergies, then the non-mental health uses of those medications were deleted from the data as much as was possible. See Methodology section.

3. Because psychoactive medications are often prescribed in the short-term for medical illnesses (e.g. when undergoing an outpatient surgical procedure) or mental health problems (e.g. after a traumatic experience), or on a trial period for psychiatric diagnoses and not found to be effective, data for children who did not receive a prescription for a psychoactive medication that lasted at least 60 days was not included. While this may seem long, it is important to remember that prescribers tend to write 30-day or longer prescriptions even at first. Many times these medications are only taken for a few days due to ineffectiveness, side effects, or failure to adhere to the prescribed regimen. Therefore, it makes sense to concentrate efforts on those children who most likely were actually taking medications beyond an initial prescription.

4. This second line in this row shows the number of 3 year olds who got any medication for longer than 60 days that was not a stimulant medication. This item addresses the last part of Criteria 7 in the DSHS Guidelines.

5. Class polypharmacy is defined as the concurrent prescription for 60 days or longer of two unique medications from the same class as noted in Appendix B. In the case of the class of mood stabilizers, where the evidence base supports the use of two meds concurrently, class polypharmacy is defined as the concurrent prescription of 3 or more meds for 60 days or longer. See the note above for an explanation of the 60-day qualifier. This row reflects Criteria 3 from the DSHS Guidelines.

6. The prescription of 5 or more medications concurrently is defined as any five psychoactive medications prescribed at the same time for 60 days or longer. This is a different type of polypharmacy from #4 above and is Criteria 2 from the DSHS Guidelines.

7. No MH diagnosis is defined as no ICD 9 code listed on a claim form for services at any time during the year reflected any mental health diagnosis. See Appendix A for a list of diagnosis codes.

8. No MH diagnosis >60 days is defined as no ICD 9 code reflecting any psychiatric diagnosis is listed on any claim form at any time during the year for those children who received greater than 60 days of any psychoactive medication. This row addresses Criteria 1 from the DSHS Guidelines.

Table 2. Most Commonly Prescribed Class Polypharmacy in Foster Children for FY 2005*

1. Antidepressants	833 children	5. Mood stabilizers	11
2. Antipsychotics	380	6. Anxiolytics	6
3. Stimulants	236	7. Sedative/hypnotics	2
4. Miscellaneous	84		

* This counts only the last instance in the year. If a child had more than one instance of class polypharmacy, only the last instance is reflected here.

Table 3. Top 10 Most Commonly Prescribed Psychoactive Medications (≥ 60 days) + Top 10 Most Common Diagnosis Groups by Age Group

Age in yrs[1]	0-2 Medication	# 86	% 100	3 Medication	# 200	% 100	4-5 Medication	# 794	% 100	6-12 Medication	# 4519	% 100	13-17 Medication	# 4662	% 100
Top 10 Meds ≥60 d[3]	Clonidine	25	29.0	Clonidine	96	48.0	Clonidine	352	44.3	Methyphenidate	2119	46.9	Methylphenidate	1374	29.5
	Diphenhydramine	24	27.9	Risperidone	91	45.5	Risperidone	336	42.3	Risperidone	1669	36.9	Trazodone	1310	28.1
	Risperidone	21	24.4	Amphetamines	59	29.5	Amphetamines	326	42.3	Amphetamines	1605	35.5	Quetiapine	1291	27.7
	Clonazepam	9	7.0	Methylphenidate	45	22.5	Methylhenidate	305	38.4	Clonidine	1407	31.1	Risperidone	1225	26.3
	Amphetamines	8	9.3	Guanfacine	24	12.0	Quetiapine	138	17.3	Quetiapine	1103	24.4	Amphetamines	1101	23.6
	Guanfacine	8	9.3	Quetiapine	24	12.0	Atomoxetine	98	12.3	Divalproex	914	20.2	Divalproex	1101	23.6
	Hydroxyzine	8	9.3	Mirtazepine	23	11.5	Mirtazapine	98	12.3	Trazodone	712	15.8	Escitalopram	964	20.7
	Mirtazepine	8	9.3	Diphennhydramine	19	9.5	Guanfacine	86	10.8	Sertraline	701	15.6	Arirpiprazole	951	20.4
	Quetiapine	7	8.1	Dexmethylphenidate	12	6.0	Divalproex	69	8.7	Atomoxetine	681	15.1	Sertraline	899	19.3
	Carbamazepine	6	7.0	oxcarbazepine	12	6.0	Trazodone	52	6.6	Aripiprazole	667	14.8	oxcarbazepine	780	16.7
	Diagnosis[2]			Diagnosis			Diagnosis			Diagnosis			Diagnosis		
Top 10 Dx	Other develop.	39	45.3	ADD	133	66.5	ADD	648	81.6	ADD	3653	80.8	ADD	2858	61.3
	Adjustment	32	37.2	Adjustment	127	63.5	Adjustment	501	63.1	Adjustment	2352	52.0	Major Dep	2046	43.9
	ADD	23	26.7	Conduct	62	31.0	PTSD's	247	31.1	Disruptive	1606	35.5	Bipolar	1969	42.2
	Speech/lang	23	26.7	Speech/lang	54	27.0	Disruptive	245	30.9	PTSD	1417	31.4	Depression NOS	1951	41.8
	Conduct	17	19.8	Disruptive	53	26.5	Conduct	164	20.7	Bipolar	1368	30.3	Adjustment Dis	1813	38.9
	Mood NOS	12	14.0	PTSD	43	21.5	Mood NOS	145	18.3	Depression NOS	1313	29.1	Disruptive	1801	38.6
	Other sleep	10	11.6	Mood NOS	37	18.5	Speech/lang	142	17.9	Major Dep.	1213	26.8	Conduct	1331	28.5
	Disruptive	9	10.5	Other develop.	36	18.0	Bipolar	138	17.4	Mood NOS	926	20.5	PTSD	1312	28.1
	Anxiety	8	9.3	Bipolar	25	12.5	Depression NO	122	15.4	Conduct	823	18.2	Mood NOS	1058	22.7
	Coordination	8	9.3	Depression NOS	23	11.5	Anxiety	96	12.1	Anxiety	542	12.0	Dysthymic	820	17.6

Age in yrs[1]	0-17 Medication	# 9740	% 100
Top 10 Meds ≥60 d[3]	Methylphenidate	3697	38.0
	Risperidone	3201	32.9
	Amphetamines	2979	30.6
	Quetiapine	2475	25.4
	Clonidine	2459	25.2
	Trazodone	2034	20.9
	Divalproex	2023	20.8
	Aripiprazole	1621	16.6
	Sertraline	1600	16.4
	escitalopram	1478	15.2
	Diagnosis		
Top 10 Dx	ADD	6891	70.7
	Adjustment	4576	47.0
	Disruptive	3508	36.0
	Bipolar	3331	34.2
	Depression NOS	3260	33.5
	Major Depression	3165	32.5
	PTSD	2853	29.3
	Conduct	2277	23.4
	Mood NOS	2058	21.1
	Dysthymic	1251	12.8

1 Child in months at the beginning of the fiscal year. 2 See Appendix A for listing of ICD-9 Codes included in each diagnosis group.

Table 4. Summary of Physicians Prescribing Psychoactive Medication to Foster Children

Age (yrs)[1]	0-2	%	3	%	4-5	%	6-12	%	13-17	%	Total	%
Prescribing any[2]	353	100	270	100	630	100	1582	100	1467	100	2651	100
Pres ≥60 d[3]	88	24.9	158	58.5	461	72.2	1329	84.0	1231	83.9	2110	79.6
Class poly[4]	2	0.6	9	3.3	56	8.9	374	23.6	481	32.8	677	25.5
≥5 meds[5]	0	0	0	0	16	2.5	155	9.8	171	11.7	264	10.0
Total poly[6]	2	0.6	9	3.3	60	9.5	397	25.1	490	33.4	698	26.3

1. Child in months at the beginning of the fiscal year. For example, zero to two includes up through the end of the 35th month after birth.
2. The number of clinicians who wrote any prescription of a psychoactive medication for a child in the age group listed.
3. The number of clinicians associated with children who received any psychoactive medication prescription for 60 or more days.
4. The number of clinicians associated with the group of children who received 2 psychoactive medications from the same class for 60 or more days.
5. The number of clinicians associated with the group of children who received 5 or more psychoactive medications concurrently for 60 days or more.
6. The total number of clinicians associated with polypharmacy of either 2 or more drugs from the same class or prescribing 5 or more medications concurrently. It is not a sum of the previous 2 rows as there is overlap between the two groups.

Table 5. Physicians with Patients on Five or More Psychoactive Medications Concurrently

# of patients	# of doctors	%	Cumulative freq	Cumulative %
1	143	54.2	143	54.2
2	36	13.6	179	67.8
3	24	9.1	203	76.9
4	7	2.7	210	76.9
5	12	4.6	222	84.1
6	6	2.3	228	86.4
7	5	1.9	233	88.6
8	1	0.4	234	88.6
9	4	1.5	238	90.2
10*	1	0.4	239	90.5
11	2	0.8	241	91.3
12	1	0.4	242	91.7
14	1	0.4	243	92.1
15	2	0.8	245	92.8
16	2	0.8	247	93.6
17	1	0.4	248	93.9
19	3	1.1	251	95.1
20	2	0.8	253	95.8
21	3	1.1	256	97.0
22	2	0.8	258	97.7
27	1	0.4	259	98.1
28	1	0.4	260	98.5
29	1	0.4	261	98.9
32	2	0.8	263	99.6
60	1	0.4	264	100.0

* 238 doctors (90% of this group) had 9 or fewer patients on 5 or more psychoactive medications concurrently, while 26 doctors (10%) had 10 or more patients.

Table 6. Comparison of Psychoactive Medication Prescribing to Foster Children Before and After the Release of the DSHS Guidelines

	5 Months Prior to the Guidelines 9/1/04 to 1/31/05		5 Months After the Guidelines 4/1/05 to 8/31/05		
	Ages 0-17	**Percent**	**Ages 0-17**	**Percent**	**Percent Change**
Total children in foster care	27,391*		30,491*		**+11.3%**
Got a psychoactive medication	9,894	36.12%	10,257	33.64%	**-6.9%**
Got a psych med for 60 or more days	7,005	25.57%	7,127	23.37%	**-8.6%**
2+ drugs in same class at same time	862	3.15%	684	2.24%	**-28.7%**
5 or more meds at same time	204	0.74%	157	0.51%	**-30.9%**
No MH diagnosis for those w/ a psych med for 60 or more days	171	2.44%	136	1.91%	**-21.8%**

*Of these children, 20,995 were in foster care both before and after the guidelines were issued.

Methodology

Data Source files

The analysis utilized the 2005 Medicaid eligibility, vendor drug prescriptions and Medicaid acute care (inpatient and non-inpatient) claims files for foster children (i.e. children with type programs 08, 09, or 10). All foster children for whom the state is the guardian receive Medicaid type programs 08, 09, or 10. A type program indicator is included in the eligibility file, but not the vendor drug file, so the eligibility file has to be matched with the drug file to pull back appropriate claims. Only claims and prescriptions for foster care type programs 08, 09, or 10 during the year were selected.

Medicaid Eligibility file

The Medicaid 8-month eligibility file is a final cleaned file of Medicaid eligibility and enrollment available approximately 8 months after any particular eligibility month. The enrollment file contains personal identification information (e.g., name, birthday), demographics, and Medicaid enrollment information. The final FY 2005 8-month eligibility file was used to determine the complete list of foster care children enrolled in type programs 08, 09, or 10 during FY2005.

Medicaid Vendor Drug file

The vendor drug claims files consist of all the paid (not written, or filled) vendor drug prescriptions for Medicaid during a particular month. Within a fiscal year, it is estimated that over 98 percent of all prescriptions, written or filled, are paid. The information in the vendor drug file is limited to that information typically seen on a prescription by a patient and pharmacist with some additional Medicaid payment information; there is no diagnostic information included in the file. The vendor drug file contains limited information on demographics and eligibility enrollment and extensive information on drugs prescribed, type of drug, amount paid, prescription, fill and payment dates. The identifying information for doctors in the vendor drug file is the Texas license number.

Medicaid Acute Care Claims files

The Medicaid acute care claims files (inpatient hospital, outpatient hospital, outpatient physician/suppliers) contain extensive information on Medicaid procedures performed, amounts paid, diagnoses, dates of service, payment dates, and provider information, and limited information on demographics and eligibility enrollment. All diagnoses are based on the ICD 9 (International Classification of Diseases) and all procedures are based on the Current Procedural Technology (CPT) codebook. The identifying information for doctors in the Medicaid acute care claims files is the Medicaid provider ID, and not the Texas license number.

Each individual in Medicaid has a unique Patient Control Number (PCN) that is located on all claims. The PCN was used to match individuals' prescriptions and claims. Because

the identifying information for doctors differs across the files and the crosswalk tables between Medicaid provider IDs and Texas license numbers are incomplete, it is not possible to match individual physician's prescriptions and claims diagnostic and service information with any degree of accuracy.

Programming

1. Appropriate prescriptions were identified: All foster children who were in a particular age group based on their age at the fill date were selected from the vendor drug file. Only prescriptions filled for foster children during their months of foster care program enrollment during the fiscal year were retained for analysis.
2. Corresponding medical claims for these individuals were identified: claims in the acute care claims files for foster children from step 1 were identified using PCNs.
    a. All individual diagnoses were also coded into a set of ICD 9 groups (such as "Depression", "Schizophrenia", etc). See Appendix A for a summary of the ICD 9 diagnosis groups.
    b. Every mental health diagnosis from the five available diagnoses fields was identified.
    c. All unique mental health diagnoses for each client were identified; only a single instance of each unique diagnostic group was kept for each client.
    d. All diagnoses between ICD-9 codes 290 and 319 were identified as Mental Health diagnoses.
    e. All seizure diagnoses from the five available diagnoses fields were identified.
    f. All unique seizure diagnoses for each client were identified; only a single instance of each unique diagnosis was kept for each client.
    g. All unique allergy diagnoses for each client were identified; only a single instance of each unique diagnosis was kept for each client.
    h. The end result is basically a record of every unique MH diagnosis within the defined ICD 9 diagnostic groups for each client.
3. Seizure client drug subsets were removed: three separate screening procedures were used to remove clients whose seizure diagnoses and prescriptions indicated that the prescriptions being utilized were most likely being prescribed for seizures, rather than mental health purposes.
    a. Potential dual use drugs were identified as: Carbamazepine, Diazepam, Gabapentin, Lamotrigine, Oxcarbazepine, Topiramate, Divalproex Sodium,Valproate Sodium,Valproic Acid
    b. Seizure diagnoses were identified as shown in Appendix D.
    c. Stage 1: All clients who had seizure diagnoses in the claim file and were receiving possible dual use MH/seizure drugs were identified. For all these clients three separate screens were enacted:
        i. Screen 1: If the clients had no other MH drug prescriptions, and they had no other mental health diagnoses, they were deleted from the sample. (e.g. the only thing this group was receiving were dual

use MH/seizure drugs and the only diagnoses they had were for seizures).

ii. Screen 2: If the clients had no other MH drug prescriptions, and they had one or more MH diagnoses but they did NOT have a Bipolar Disorder diagnosis, then they were deleted from the sample.

iii. Screen 3: If the clients did have other MH drug prescriptions, and they had one or more MH diagnoses but they did NOT have a Bipolar Disorder diagnosis, then ONLY the dual use MH/seizure drugs prescriptions and the seizure disorders were deleted from the sample. For these clients all their other non-seizure drugs and diagnoses were retained in the data file for analysis.

4. Allergy and skin condition client drug subsets were removed: Diphenhydramine and Hydroxyzine were identified as dual use mental health/allergy medications.
    a. A list of allergy and skin condition diagnoses was compiled from the ICD 9. A list of the diagnoses found in the data set that were identified among foster care children is provided in Appendix C.
    b. If a client had no mental health diagnoses (e.g. nothing between ICD-9 290 and 319) and no mental health drug prescriptions (e.g. no prescriptions other than Diphenhydramine and Hydroxyzine), and a client did have an allergy diagnosis (listed in Appendix C) and the client did have an allergy prescription (Diphenhydramine or Hydroxyzine); then those clients were deleted from the drug file and the claims file.
5. Five or more concurrent prescriptions for 60 days were identified: for the remaining drugs in the vendor drug file an array was created consisting of every generic drug that every patient had for every day during the year.
    a. For every day of the year the total number of prescriptions open for each individual generic drug were counted for each patient.
    b. Each prescription's start date was defined as the fill date on the claim and the end date as the fill date plus the days supply listed on the claim.
    c. For each patient's different specific generic drug prescriptions, each day of the year was recoded to indicate only the presence or absence of a particular generic drug prescription being open on that day.
    d. Generic drug prescriptions for clients whose total number of days during the year were less than 60 were deleted.
    e. The array was then rolled up to the level of clients by summing the number of active generic drug prescriptions for all generic drugs a client had for every day of the year.
    f. All clients who had less than 4 generic drug prescriptions during the entire year were deleted.
    g. For the remaining clients every day of the year that had 4 or fewer prescriptions open on it was coded as a 0 (zero). All days that had 5 or more prescriptions open on it were coded as a 1 (one).
    h. Every continuous 60-day block of the year was examined; if the sum of the days was 60 then the client was flagged as meeting the criteria of 5 or more concurrent psychotropic prescriptions and the starting day of that

period was noted. Because the program processed the file continuously from the beginning to the end of the year, only the last 60-day period in which a client had 5 or more prescriptions open for 60 consecutive days was retained.

6. Two or more concurrent prescriptions (three or more for mood stabilizers) within the same DSHS Formulary Class for 60 days were identified. A similar procedure was used to identify clients who had concurrent prescriptions open within the same drug class for 60 days or more.
    a. Every day of the year a binary indicator was computed for each specific generic drug for each patient (steps 4a – 4d above).
    b. However, unlike the previous analysis, instead of rolling up to the level of the client, the drugs were rolled up to the combined level of the client and DSHS drug formulary classes.
    c. Clients' specific formulary classes that had only a single generic drug prescription in a formulary class during the year were deleted. The clients that had only 2 or fewer generic drug prescriptions from the mood stabilizer formulary class during the year were deleted.
    d. A binary recoding was then performed in order to count the days on which clients had 2 or more (3 or more for mood stabilizers) open prescriptions for every day of the year. Similar to the previous method (step 4h above), every continuous 60-day block during the year was examined for the presence of 2 or more (3 or more for mood stabilizers) open generic drug prescriptions within each DSHS drug formulary class a client had. The last 60 days that a client met the criteria for open concurrent prescriptions within a DSHS drug formulary class for each drug class combination was flagged and retained.
7. Clients who had received any generic drug prescription for 60 days or more were identified: a similar procedure to that described above for concurrency was used to identify clients who had any generic drug prescriptions open for 60 days or more. Clients who meet the criteria's records were flagged and retained.
8. Clients meeting the concurrency criteria had their claims and prescriptions records flagged for analysis. All the clients whose records were flagged and retained from the five (5) or more concurrent prescriptions during 60 days analysis or concurrent generic drug prescriptions within DSHS formulary classes were merged back into the original file in order to pull out all of their prescription and claims records.
9. This file of prescriptions and diagnoses for foster children who met one of the two criteria for concurrent prescriptions formed the basic file for most analyses. Some additional analyses used the total prescriptions or all claims for all foster children. The prescriptions and diagnostic records were then analyzed using SAS and SQL to produce the summary tables.

Appendix A
Defining ICD 9 Codes for Mental Health ICD 9 Groups

Group Name	Start ICD Diagnosis Code	End ICD Diagnosis Code
Dementia	290	29099
Alcohol	291	29199
Other Drug	2920	29299
Mental Disorder Due To GMC	293	29399
Misc. Cognitive Disorders	294	29499
Schizophrenia	29500	29599
Bipolar	2960	29619
Major Depression	29620	29639
Bipolar	29640	29689
Mood Disorder NOS	29690	29699
Other Psychotic	2970	29899
PDD	299	29980
Other Psychotic	29999	29999
Anxiety	300	
Anxiety	30002	
Anxiety	30009	
Factitious Disorders	30016	30019
Phobias	30020	30029
OCD	3003	
Dysthymic	3004	
Neurasthenia	3005	
Depersonalization	3006	
Body Dysmorhphia / Hypocondriasis	3007	
Somatoform	30081	30089
Unspecified Mental Disorder	3009	
Personality Disorder	301	30199
Psychosexual Disorders	3022	3029
Alcohol	303	30399
Other Drug	304	30599
Sexual Disorders	30651	
Hysteria	3060	3069
Stuttering	307	
Eating Disorder	3071	
Tic Disorders	3072	3073
Sleep Disorders	30740	30749
Eating Disorder	30750	30759
Elimination Disorders	3076	3077
Pain Disorders	3078	30789
Communication/Habit Disorder	3079	

Group Name	Start ICD Diagnosis Code	End ICD Diagnosis Code
Adjustment Disorder	3080	3094
PTSD	30981	30989
Adjustment Disorder	3099	
Mental Disorder Due To Brain Damage	310	3109
Depression NOS	311	
Impulsive Disorders	31230	31239
Conduct	3120	31229
Conduct	3124	3129
Anxiety	3130	
Dysthymic	3131	
Disruptive	3133	31381
Social Withdrawal	3121	3123
Identity	31382	
Academic Disorders	31383	
Reactive Attachment	31389	
Childhood Mental Disorder NOS	3139	
ADD	314	31499
Academic Disorders	315	3152
Academic Disorders	3159	
Speech Language	31531	31539
Coordination	3154	
Other Developmental	3155	3159
Psychic Factors With GMC	316	
MR	317	319
Movement Disorders	3321	33399
Narcolepsy	347	
Other Sleep Disorders	7805	78059
Elimination Disorders	7876	

Appendix B
DSHS Formulary Classes and Generic Drug Names

DSHS_FORMULARY	Generic_Name
ANTIDEPRESSANTS	Amitrip Hcl/Chlordiazepoxide
ANTIDEPRESSANTS	Amitriptyline Hcl
ANTIDEPRESSANTS	Amitriptyline Hcl/Perphenazine
ANTIDEPRESSANTS	Amoxapine
ANTIDEPRESSANTS	Bupropion Hcl
ANTIDEPRESSANTS	Citalopram Hydrobromide
ANTIDEPRESSANTS	Desipramine Hcl
ANTIDEPRESSANTS	Doxepin Hcl
ANTIDEPRESSANTS	Duloxetine Hcl
ANTIDEPRESSANTS	Escitalopram Oxalate
ANTIDEPRESSANTS	Fluoxetine Hcl
ANTIDEPRESSANTS	Fluvoxamine Maleate
ANTIDEPRESSANTS	Imipramine Hcl
ANTIDEPRESSANTS	Imipramine Pamoate
ANTIDEPRESSANTS	Mirtazapine
ANTIDEPRESSANTS	Nortriptyline Hcl
ANTIDEPRESSANTS	Paroxetine Hcl
ANTIDEPRESSANTS	Paroxetine Mesylate
ANTIDEPRESSANTS	Phenelzine Sulfate
ANTIDEPRESSANTS	Sertraline Hcl
ANTIDEPRESSANTS	Trazodone Hcl
ANTIDEPRESSANTS	Tranylcypromine Sulfate
ANTIDEPRESSANTS	Trimipramine Maleate
ANTIDEPRESSANTS	Venlafaxine Hcl
ANTIPSYCHOTICS	Aripiprazole
ANTIPSYCHOTICS	Chlorpromazine Hcl
ANTIPSYCHOTICS	Clozapine
ANTIPSYCHOTICS	Fluphenazine Decanoate
ANTIPSYCHOTICS	Fluphenazine Hcl
ANTIPSYCHOTICS	Haloperidol
ANTIPSYCHOTICS	Haloperidol Decanoate
ANTIPSYCHOTICS	Haloperidol Lactate
ANTIPSYCHOTICS	Loxapine Succinate
ANTIPSYCHOTICS	Mesoridazine Besylate
ANTIPSYCHOTICS	Molindone Hcl
ANTIPSYCHOTICS	Olanzapine
ANTIPSYCHOTICS	Olanzapine/Fluoxetine Hcl
ANTIPSYCHOTICS	Perphenazine

DSHS_FORMULARY	Generic_Name
ANTIPSYCHOTICS	Quetiapine Fumarate
ANTIPSYCHOTICS	Risperidone
ANTIPSYCHOTICS	Risperidone Microspheres
ANTIPSYCHOTICS	Thioridazine Hcl
ANTIPSYCHOTICS	Thiothixene
ANTIPSYCHOTICS	Trifluoperazine Hcl
ANTIPSYCHOTICS	Ziprasidone Hcl
ANTIPSYCHOTICS	Ziprasidone Mesylate
ANXIOLYTICS	Alprazolam
ANXIOLYTICS	Buspirone Hcl
ANXIOLYTICS	Chlordiazepoxide Hcl
ANXIOLYTICS	Clonazepam
ANXIOLYTICS	Clorazepate Dipotassium
ANXIOLYTICS	Diazepam
ANXIOLYTICS	Lorazepam
ANXIOLYTICS	Oxazepam
MISCPSYCH	Clomipramine Hcl
MISCPSYCH	Clonidine Hcl
MISCPSYCH	Gabapentin
MISCPSYCH	Guanfacine Hcl
MISCPSYCH	Propranolol Hcl
MOOD STABILIZERS	Carbamazepine
MOOD STABILIZERS	Divalproex Sodium
MOOD STABILIZERS	Lamotrigine
MOOD STABILIZERS	Lithium Carbonate
MOOD STABILIZERS	Lithium Citrate
MOOD STABILIZERS	Oxcarbazepine
MOOD STABILIZERS	Topiramate
MOOD STABILIZERS	Valproate Sodium
MOOD STABILIZERS	Valproic Acid
MOOD STABILIZERS	Verapamil Hcl
SEDATIVES-HYPNOTICS	Chloral Hydrate
SEDATIVES-HYPNOTICS	Diphenhydramine Hcl
SEDATIVES-HYPNOTICS	Hydroxyzine Hcl
SEDATIVES-HYPNOTICS	Hydroxyzine Pamoate
SEDATIVES-HYPNOTICS	Temazepam
SEDATIVES-HYPNOTICS	Triazolam
SEDATIVES-HYPNOTICS	Zaleplon
SEDATIVES-HYPNOTICS	Zolpidem Tartrate

DSHS_FORMULARY	Generic_Name
STIMULANTS	Amphet Asp/Amphet/D-Amphet
STIMULANTS	Atomoxetine Hcl
STIMULANTS	D-Amphetamine Sulfate
STIMULANTS	Dexmethylphenidate Hcl
STIMULANTS	Methylphenidate Hcl

Appendix C
Seizure Diagnosis Codes

ICD 9 Diagnosis Code	Description
3332	Myoclonus
34500	Gen Noncv Ep W/O Intr Ep
34501	Gen Nonconv Ep W Intr Ep
3451	Gen Cnv Epil W W/O Intr E
34510	Gen Cnv Epil W/O Intr Ep
34511	Gen Cnv Epil W Intr Epil
3452	Petit Mal Status
3453	Grand Mal Status
34540	Psymotr Epil W/O Int Epi
34541	Psymotr Epil W Intr Epil
34550	Part Epil W/O Intr Epil
34551	Part Epil W Intr Epil
3456	Inf Spasm W W/O Intr Epil
34560	Inf Spasm W/O Intr Epil
34561	Inf Spasm W Intract Epil
34570	Epil Par Cont W/O Int Ep
3458	Epilep Nec W W/O Intr Epi
34580	Epilep Nec W/O Intr Epil
34581	Epilepsy Nec W Intr Epil
3459	Epilep Nos W W/O Intr Epi
34590	Epilep Nos W/O Intr Epil
34591	Epilepsy Nos W Intr Epil
7803	Convulsions
78030	Convulsions
78031	Febrile Convulsions
78039	Convulsions Nec

Table above lists all seizure diagnoses found among the sample of FY05 foster care children.

Appendix D
Allergy and Skin Conditions Diagnoses Codes

ICD 9 Diagnosis Code	Description
33381	Blepharospasm
33382	Orofacial Dyskinesia
33383	Spasmodic Torticollis
33390	Extrapyramidal Dis Nos
33399	Extrapyramidal Dis Nec
4770	Rhinitis Due To Pollen
4771	Allergic Rhinitis-Food
4772	
4778	Allergic Rhinitis Nec
4779	Allergic Rhinitis Nos
69010	Sebrrheic Dermatitis Nos
69011	Seborrhea Capitis
69018	Sebrrheic Dermatitis Nec
6910	Diaper Or Napkin Rash
6918	Other Atopic Dermatitis
692	
6920	Detergent Dermatitis
6921	Oil & Grease Dermatitis
6922	Solvent Dermatitis
6923	Topical Med Dermatitis
6924	Chemical Dermatitis Nec
6925	Topical Food Dermatitis
6926	Dermatitis Due To Plant
69270	Solar Dermatitis Nos
69271	Sunburn
69272	Act Drmtitis Solar Rdiat
69276	Sunburn Of Second Degree
69283	Dermatitis Metals
69289	Dermatitis Nec
6929	Dermatitis Nos
6960	Psoriatic Arthropathy
6961	Other Psoriasis
6962	Parapsoriasis
6963	Pityriasis Rosea
6965	Pityriasis Nec & Nos
6968	Psorias Related Dis Nec
698	
6980	Pruritus Ani
6981	Pruritus Of Genitalia

6982	Prurigo
6983	Lichenification
6984	Dermatitis Factitia
6988	Pruritic Conditions Nec
6989	Pruritic Disorder Nos
7051	Prickly Heat
70581	Dyshidrosis
70583	Hidradenitis
70589	Sweat Gland Disorder Nec
7060	Acne Varioliformis
7061	Acne Nec
7062	Sebaceous Cyst
7063	Seborrhea
7068	Sebaceous Gland Dis Nec
7069	Sebaceous Gland Dis Nos
7080	Allergic Urticaria
7081	Idiopathic Urticaria
7083	Dermatographic Urticaria
7088	Urticaria Nec
7089	Urticaria Nos
7098	Skin Disorders Nec
7099	Skin Disorder Nos
7821	Nonspecif Skin Erupt Nec

Table above lists all allergy and skin condition diagnoses found among the sample of FY05 foster care children.