

**Patterns of Psychotropic Medication Prescribing  
for Children in the Massachusetts  
Child Welfare and Juvenile Justice Systems**

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**Background on the Massachusetts System**

- EOHS/Medicaid-acute behavioral health system through managed care entities
- PCC Plan is largest Medicaid MCO
  - MBHP is Behavioral Health Carve-out
  - State-wide
  - 300,000 Members of which 170,000 are children
  - With most DSS, DYS, and DMH children in MBHP plan
- Department of Social Services (DSS) - child welfare
- Department of Youth Services (DYS) - juvenile justice
- Department of Mental Health (DMH) - long-term, continuing care



**Research Questions**

- Are there differences in how Medicaid-enrolled children in state custody (DSS and DYS) are prescribed psychotropic medications compared to a similar population of children not in state custody?
- Are there differences among prescribers in the use of psychotropic medications in study populations?



**Populations**

- **DSS:** care/custody of child welfare agency in kinship care, foster care, group homes, residential (N = 8553)
- **DYS:** children committed to juvenile justice agency
  - secure settings (N = 636)
  - community settings (N = 721)
- **Comparison groups:** 3 groups of non-state agency involved children matched 1:1 on
  - Member cost & service utilization
  - Age
  - Gender
  - Diagnosis not used
- **All Children were:**
  - Under the age of 18
  - Eligible between July 1- December 2004 for at least 135 days of 180 day (6 month) study period



**Demographics of Study  
and Comparison Groups**

Population	Average Age	Gender (% Male)
DSS	10.4	51.2%
DSS Comparison	9.7	57.2%
DYS Locked	15.7	87.9%
DYS Locked Comparison	15.8	83.1%
DYS Community	16	81.7%
DYS Community Comparison	15.9	85.5%



**Measures - Pharmacy**


**Medication Classes**

- Antidepressants
- Antipsychotics
- Hypnotics
- Sedatives
- Anticonvulsants
- Medications used in the treatment of ADHD




### Measures - Polypharmacy

- Polypharmacy:
  - More than one medication within a specific therapeutic category for 60 days or more
  - Three or more medications from any category for 60 days or more




### Measures - High Dosage

- Medications assigned a "maximum daily dose"
- Texas Dept of State Health Services "Psychotropic Medication Utilization Parameters for Foster Children" or FDA
  - [www.dshs.state.tx.us/mhprograms/psychotropicMedicationFosterChildren.shtml](http://www.dshs.state.tx.us/mhprograms/psychotropicMedicationFosterChildren.shtml)
- When not available, doses assigned by MBHP psychiatrists
- Dosages divided into two age categories:
  - under 12 years
  - 12 to 18 years
- Medications based on weight:
  - 12 years and under: 100 pounds
  - 12 to 18 years: 150 pounds




### Measures - Prescriber Patterns

- 68 prescribers profiled
- Indicators:
  - Polypharmacy
  - Use of high doses
  - Use of medications not often used in children




### Measures - Diagnoses

- Twelve groupings
  - Adjustment Disorders
  - Anxiety Disorders
  - Attention Deficit/Hyperactivity Disorders
  - Bipolar Disorders
  - Conduct, Oppositional-Defiant, and Disruptive Behavior Disorders
  - Depressive and Dysthymic Disorders
  - Mood Disorders NOS
  - Pervasive Developmental Disorders
  - Post-Traumatic Stress Disorders
  - Psychotic Disorders (other than Schizophrenia and Bipolar)
  - Schizophrenia
  - Substance Abuse/Dependence




### Finding 1 Overuse of Psychotropic Medications

Population	DSS		Comparison		P Value
	N	%	N	%	
Children On Any Med	2862	33.5%	3280	38.3%	<.001
Average Daily Meds		1.96		1.56	<.001
Children on 60 day polypharm (>2 meds)	880	30.7%	775	23.6%	<.001
Children on 90 day polypharm (>2 meds)	761	26.6%	604	18.4%	<.001

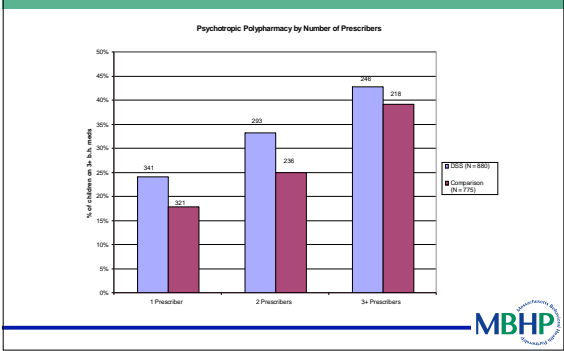


### Finding 1 Overuse of Psychotropic Medications

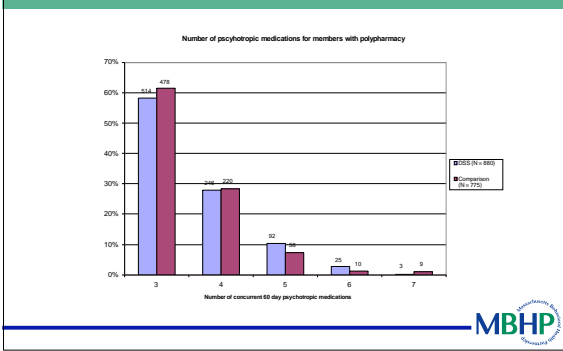
Population	DYS - Community		Comparison		P Value
	N	%	N	%	
Children On Any Med	146	20.2%	271	37.7%	<.001
Average Daily Meds		0.82		1.39	<.001
Children on 60 day polypharm (>2 meds)	12	8.2%	46	17.0%	0.021
Children on 90 day polypharm (>2 meds)	9	6.2%	38	14.0%	0.024
Population	DYS - Locked		Comparison		P Value
N	%	N	%		
Children On Any Med	225	35.4%	319	50.3%	<.001
Average Daily Meds		1.05		1.56	<.001
Children on 60 day polypharm (>2 meds)	15	6.7%	82	25.7%	<.001
Children on 90 day polypharm (>2 meds)	10	4.4%	68	21.3%	<.001



### Finding 1 Overuse of Psychotropic Medications



### Finding 1 Overuse of Psychotropic Medications



### Finding 1 Overuse of Psychotropic Medications

Population	DSS		Comparison		P Value
	N	%	N	%	
<b>Specific Medication</b>					
Antipsychotics	804	9.40%	1256	14.70%	<.001
Antidepressants	1656	19.40%	1340	15.70%	<.001
Rate of Depressive & Dysthymic Diagnosis	1367	16.00%	1081	12.60%	<.001
ADHD Medication	1823	21.30%	2316	27.10%	<.001
Rate of ADHD Diagnosis	1196	14.00%	1889	22.10%	<.001
Mood Stabilizers	1112	13.00%	973	11.40%	<.001
Rate of Bipolar Diagnosis	529	6.20%	611	7.10%	0.013
Anti-anxiety or Sedatives (any)	254	3.00%	353	4.10%	<.001
Rate of Anxiety Disorder Diagnosis	338	4.00%	489	5.70%	<.001

### Finding 1 Overuse of Psychotropic Medications

Population	DYS - Community		Comparison	P Value	DYS - Locked		Comparison	P Value		
	N	%			N	%				
<b>Specific Medication</b>										
Antipsychotics	37	5.10%	94	13.10%	<.001	55	8.60%	133	21.00%	<.001
Antidepressants	78	10.80%	142	19.70%	<.001	134	21.10%	162	28.70%	0.002
Rate of Depressive & Dysthymic Diagnosis	80	11.10%	130	18.10%	<.001	126	19.80%	159	25.10%	0.029
ADHD med	71	9.80%	144	20.00%	<.001	101	15.90%	175	27.60%	p<.001
Rate of ADHD Diagnosis	59	8.20%	116	16.10%	<.001	107	16.80%	145	22.90%	0.009
Mood Stabilizers	39	5.40%	90	12.50%	<.001	57	9.00%	107	16.90%	<.001
Rate of Bipolar Diagnosis	33	4.60%	55	7.60%	0.02	60	9.40%	69	10.90%	n.s.
Anti-anxiety or Sedatives (any)	12	1.70%	34	4.70%	0.002	10	1.60%	38	6.00%	<.001
Rate of Anxiety Disorder Diagnosis	18	2.50%	30	4.20%	n.s.	18	2.80%	43	6.80%	0

### Finding 1 Overuse of Psychotropic Medications

Population	DSS		Comparison		P Value
	N	%	N	%	
Members on >1 antipsychotic med concurrently	41	5.10%	42	3.30%	<.001
Members on >1 depression med concurrently	242	14.60%	107	8.00%	<.001
Members on >1 ADHD med concurrently	463	25.40%	495	21.40%	0.003
Members on >1 mood stabilizer med concurrently	125	11.20%	75	7.70%	0.008
Members with any duplication of medication therapy	800	28.00%	683	20.80%	<.001

### Finding 1 Overuse of Psychotropic Medications

Population	DYS - Community		Comparison	P Value	DYS - Locked		Comparison	P Value		
	N	%			N	%				
Members with duplication of therapy	7	4.80%	39	14.40%	0.005	20	8.90%	55	17.20%	0.008

### Finding 1 Overuse of Psychotropic Medications

- DSS and DYS slightly less likely to be on psychotropic medications than comparison groups
- DSS children, when receiving medications, were more likely to be on more medications than comparison group



### Finding 2 Use of High Doses

- No significant differences between populations
- Approximately 8% of children on an antipsychotic received a high dose
- Approximately 5% of children on an antidepressant received a high dose



### Finding 3 Use of Medications Not Typically Used with Children

- Very low use of these psychotropic medications
- Total of 7 children received infrequently prescribed antipsychotics
- Total of 12 children received infrequently prescribed antidepressants
- No children received promoline



### Finding 4 Use of Medications Without Behavioral Health Services

Population	DSS		Comparison		P Value
	N	%	N	%	
No BH Services & on Antidepressants	197	11.90%	24	1.80%	<.001
No BH Services & on ADHD Med	250	13.70%	100	4.30%	<.001
No BH Services & on Mood Stabilizers	164	14.70%	29	3.00%	<.001



### Finding 4 Use of Medications Without Behavioral Health Services

- DSS children slightly less likely to receive BH services than comparison group  
  
85%-88% DSS compared to 96%-98%
- 77% of children who did not receive BH services had BH services outside of the study period or received meds from a BH specialist  
  
Cannot distinguish children in residential placement



### Finding 5 Underuse of Psychotropic Medications

- No significant difference between DSS and comparison group based on diagnosis
- For the DYS locked population (N=37), 62% of the children with a bipolar disorder did not receive a mood stabilizer compared to 35% of the comparison group



### Finding 6 Prescriptions Without a Diagnosis

Population	DSS		Comparison		P Value
	N	%	N	%	
Prescribed antipsychotic w/o diagnosis of Schizophrenia, Psychosis or Bipolar Disorder	402	59.60%	737	59.70%	n.s.
Prescribed ADHD med w/o ADHD diagnosis (No medical claims analyzed)	809	51.50%	806	36.40%	<.001
Prescribed mood stabilizers w/o bipolar diagnosis (Children with seizure disorders included)	645	68.00%	564	59.70%	<.001



### Finding 6 Prescriptions Without a Diagnosis

Diagnoses of Children Prescribed Antipsychotics w/o Related Diagnosis				
Diagnosis	DSS		Comparison DSS	
Adjustment Disorder	58	11%	81	11%
Anxiety Disorder	28	5%	56	7%
Attention Deficit Hyperactivity Disorder	160	30%	388	51%
Conduct, ODD and Disruptive Behavior Disorders	122	23%	162	21%
Depressive and Dysthymic Disorders	105	20%	154	20%
Other Developmental Disorders	34	6%	43	6%
Mood Disorder, NOS	45	8%	87	11%
Pervasive Developmental Delays	18	3%	55	7%
Post Traumatic Stress Disorder	196	37%	139	18%

Percentages total more than 100% due to multiple diagnoses.  
Related diagnoses would include Schizophrenia, Bipolar Disorder, Psychosis.

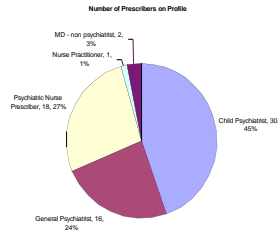


### Finding 7 Provider Profiling

- 68 Providers Profiled
- No differences between DSS, DYS, and respective comparison groups
- Data for all groups merged



### Finding 7 Provider Profiling



### Finding 7 Provider Profiling

	Range for Star Ranking			
	*	**	***	****
% prescribing 3+ meds for 60+ days	26.2% - 65.1%	18.2% - <26.2%	11.0% - <18.2%	0% - <11%
% prescribing any infrequent med	2.4% - 27.9%	.9% - <2.4%	<.9% and > 0	0%
% prescribing high dose	20.1% - 39.0%	13.2% - <20.1%	8.5% - <13.2%	1.1% - <8.5%
% prescribing 2+ meds in same category	11.7% - 48.8%	6.5% - 11.7%	3.5% - <6.5%	0% - <3.5%



### Finding 7 Provider Profiling



## Finding 7 Provider Profiling

	Lowest rate	Quartile 1	Quartile 2	Quartile 3	Highest rate
Avg Number of psychotropic meds/child	1.06	2.43	2.71	3.34	5.77
Avg Daily psychotropic meds/child	0.59	0.98	1.21	1.63	3.39
Avg Number 30-day prescriptions/child in 6 months	3.62	6.01	7.44	9.97	20.54
% children prescribed high dose antidepressants	0%	0%	8%	8%	23%
% children prescribed high dose antipsychotics	0%	0%	8%	8%	31%
% children prescribed any high dose psychotropic medication	1%	8%	13%	20%	39%
% children prescribed benzocaine/opioids	0%	0%	1%	3%	28%
% children prescribed infrequently used antidepressants	0%	0%	0%	0%	8%
% children prescribed infrequently used antipsychotics	0%	0%	0%	0%	4%
% children prescribed any infrequently used psychotropic medication	0%	0%	1%	2%	28%
% children prescribed 2+ ADHD meds concurrently	0%	0%	0%	0%	12%
% children prescribed 2+ antidepressants concurrently	0%	5%	9%	13%	40%
% children prescribed 2+ antipsychotics concurrently	0%	0%	0%	4%	33%
% children prescribed 2+ mood stabilizers	0%	0%	3%	7%	31%
% children prescribed 2+ concurrent meds in same category	0%	3%	7%	12%	49%
% children prescribed 2+ psychotropic meds concurrently for 60 or more days	0%	11%	18%	26%	69%



## Finding 7 Provider Profiling

- Although no difference in provider prescribing between state custody and comparison groups, analysis reveals significant variation of provider prescribing.
- 22% of providers have general pattern of prescribing that merits further investigation



## Conclusions

- Are there differences in how Medicaid-enrolled children in state custody (DSS and DYS) are prescribed psychotropic medications compared to a similar population of children not in state custody?
  - More similarities than differences in how children in state custody and respective comparison group prescribed medications
  - Small but statistically significant difference in rates of polypharmacy for DSS-involved children
  - Some outlier patterns of psychotropic medication use amongst all Medicaid children that needs further investigation



## Conclusions

- Are there differences among prescribers in the use of psychotropic medications in study populations?
  - No differences in how providers prescribed for state agency involved children and comparison groups
  - Unexpected finding:** Significant variation in practice found between prescribers across all children-both state agency and comparison



## Next Steps

Next stages of quality improvement include:

- Member level medical record review
- Provider level medical record review
- Support from the Center for Health Care Strategies (CHCS)



## Support & Contributions

MBHP would like to thank:

- Executive Office of Health & Human Services
  - Department of Mental Health
  - Department of Social Services
  - Department of Youth Services
- Massachusetts Child Psychiatry Access Project
- MBHP Family Advisory Council



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