Clinical and Non-Clinical Characteristics associate with Medication Use among Children with Serious Emotional Disturbance

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Medication Use: The Issue

- The role of community psychiatry in system of care initiatives is unclear
- These treatment methods are becoming more important in system of care approaches (Hallfors, 1998)
  - What are the characteristics of children using psychotropic medications as part of their treatment in system of care initiatives?
  - What changes occur related to the use of medication upon entry into the system of care?

Medication Use: Local Analysis I

- Residential Treatment Center Evaluation Project (Pavkov and Lourie, 2004)
  - Residents who were young more likely to use medications
  - Residents having an IEP were more likely to use medications
  - Residents having been restrained more likely to use medications

Medication Use: Local Analysis II

- Circle Around Families Child Mental Health Initiative (Pavkov and Greenwald, 2005)
  - The number of medications used ranged from zero to seven
  - Approximately 1/3 of children used more than one medication
  - Males more likely to receive medication than females

Medication Use: Increased Use

- More and more children are receiving psychotropic medications (Jensen, Bhatara, & Vitiello, 1999)
- Use has increased dramatically since the 1980s (Rawal, Lyons, MacIntyre, & Hunter, 2004)
- Over 80 percent of children in hospital and residential settings are on at least one psychotropic medication and nearly half on at least two medications (Lyons, 2000)

Medication Use: Patterns of Use

- Stimulants and antidepressants are most common in pediatric population (Rawal, 2004)
- There is some evidence that antipsychotics are over prescribed (MacIntyre, 2004)
- Younger children are twice as likely than older children to have medication record (Hallfors et al., 1998)

Medication Use: Benefits

- Connor et al. (2003) details benefits as indicated by clinicians, teachers, and parents
- Diederman, et al (1999) suggests less likelihood of later substance abuse by those treated with medication for ADHD
- Hallfors et al. (1998) suggests that medication use may reduce the need for residential placement

Medication Use: Risks

- Risk to the developmental processes relative to both body systems and brain function (Lyons, 2000)
- Increased labeling and stigmatization (Pumariega, et al 2002)
- Risk of side effects such as syncope, vomiting, hair loss, confusion, and anxiety (Cheung et al., 2003)
- Inadequate records of use poses a threat (Hallfors, 1998, Epstein et al, 1995)

Medication Use: Challenges

- Long and short-term effects of medication (Lyons, 2000)
- Understanding of medication use by treatment staff (Pavkov and Hug, 2006)
- Educating caregivers related to the use of medications (Pavkov and Hug, 2006)
- Informed consent issues (Mpofu, 2002)

Study Objective

- Investigate the relationship between medication use and child and family factors – ***both clinical and non-clinical***
  - ✓Large sample
  - ✓Children with serious mental health challenges

Data Source and Sample

- ***Data:*** collected as a part of the National Evaluation of the Comprehensive Community Mental Health Services for Children and Their Families Program
  - Collected between 1997 and 2004
  - Collected from up to 45 communities funded between 1997 and 2000
- ***Sample:*** 7,009 children enrolled in the descriptive study component of the National Evaluation with complete data on:
  - » Medication history
  - » Demographic characteristics
  - » Prior service utilization
  - » Referral source and Medicaid eligibility

Study Sample Comparison

Available Data: N=10,698

Study Sample: n=7,009

	Selected (n=7,009)	Not Selected (n=3,689)
Med Use in Prior 6 months*	52.5%	55.5%
Male	66.6%	66.3%
White	57.6%	57.0%
Age*	M=12.0	M=12.5
Medicaid Eligibility*	69.4%	73.2%
Referral Source*		
MH	32.1%	31.9%
SCH	22.1%	12.2%
JJ	15.2%	15.8%
CW	8.7%	20.4%
SLF	12.6%	9.3%
OTH	9.3%	10.4%

*p<.05

Baseline Indicators

Indicator	Source of Information	Description
Demographic Information	Caregiver Report	Age, Gender, Race/Ethnicity
Referral Source	Record Review	Referred for system-of-care services by mental health, schools, justice, child welfare, self or other
Medication Use	Caregiver Report	Has child taken medication for behavioral or emotional symptoms in the last 6 months?
Service History	Caregiver Report	Received school-based, day treatment, substance abuse, and/or outpatient services in the last 12 months.
Economic Indicators	Caregiver Report	Medicaid eligibility, caregiver education, income
Child and Family Lifetime Events	Caregiver Report	Child history of suicide attempt, psychiatric hospitalization. Family history of mental illness.

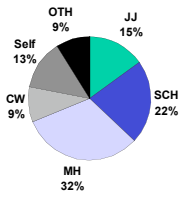
Analyses

- Bivariate Analyses: assess independent relationship between medication use and child/family factors
  - t-tests
  - chi-squares
- Logistic Regression Analysis: simultaneous assessment of the relationship between medication use and child/family factors
  - Criterion variable = medication use in prior 6 months

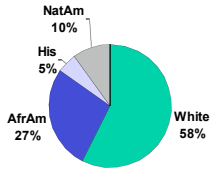
Sample Characteristics

- 66.6% Male
- 69.4% Medicaid Eligible
- Average Age = 12.04

Referral Source



Race/Ethnicity



Bivariate Findings: Overall

- The majority of bivariate relationships between medication use and each clinical and non-clinical characteristic reached statistically significant
- Children who have taken medication for behavioral or emotional problems in the 6-months prior to entering system-of-care services are:
  - Slightly (albeit sig.) younger (12.2 vs 11.9yrs)

Statistically Significant Bivariate Findings: Child Characteristics

- Differences in child characteristics of those who have taken medication in the 6-months prior to SOC entry as compared to those who have not:

CHILD CHARACTERISTIC		MED USE	NO MED USE
Age		M=11.9	M=12.2
Race/Ethnicity			
	White	66.7%	47.5%
	Native	3.5%	17.7%
Female		37.8%	29.3%
Suicide Attempt		19.8%	7.8%

Statistically Significant Bivariate Findings: Family Characteristics

- Differences in family characteristics of those who have taken medication in the 6-months prior to SOC entry as compared to those who have not:

FAMILY CHARACTERISTIC		MED USE	NO MED USE
Medicaid Eligibility of Child		71.4%	67.3%
Family Income	< 10,000	27.5%	33.3%
	35 – 49,999	9.1%	7.1%
	50 – 74,999	6.3%	3.6%
Caregiver Highest Grade in School		M=12.3	M=11.8
History of Family Mental Illness		67.1%	47.0%

Statistically Significant Bivariate Findings: Clinical Characteristics

- Differences in clinical characteristics of those who have taken medication in the 6-months prior to SOC entry as compared to those who have not:

CLINICAL CHARACTERISTIC		MED USE	NO MED USE
Referral Source	JJ	11.7%	19.0%
	SCH	19.7%	24.8%
	MH	41.4%	21.9%
	CW	8.7%	8.7%
	SELF	9.9%	15.6%
	OTH	8.6%	10.0%
Outpatient Service in prior 12 months		81.5%	48.5%
Day Treatment in prior 12 months		19.5%	6.0%
Previous Psychiatric Hospitalization		42.2%	9.9%

No differences in receipt of substance abuse treatment in prior 12 months

Simultaneous Comparison

Child Characteristics

	Medication use in Prior 6 months	
	B (SE)	OR
Race [a]		
AfrAm**	-.22 (.07)	.81
Hispanic	ns	ns
NatAm***	-1.36 (.12)	.26
Female***	-.38 (.06)	.71
Suicide Attempt***	.58 (1.0)	1.8

a Reference category=White

* p < .05, ** p < .01, *** p < .001

Simultaneous Comparison

Family Characteristics

	Medication use in Prior 6 months	
	B (SE)	OR
Family Income***	.39 (.06)	1.1
Child Medicaid Eligible*	.15 (.07)	1.2
Caregiver Highest Grade	ns	ns
History of Family Mental Illness***	.39 (.06)	1.5

* p < .05
** p < .01
*** p < .001

Simultaneous Comparison

Clinical Characteristics

	Medication use in Prior 6 months	
	B (SE)	OR
Referral Source [a]		
SCH	ns	ns
MH***	.79 (1.0)	2.2
CW*	.27 (.13)	1.3
SELF*	.24 (.12)	1.3
OTH*	.26 (.12)	1.3
Outpatient Service prior 12 mos***	1.0 (.07)	2.8
Day Treatment prior 12 mos***	.59 (1.0)	1.8
Substance use Tx prior 12 mos***	-.41 (.11)	.67
School-based Services prior 12 mos***	.78 (.06)	2.2

a Reference category=juvenile justice

* p < .05, ** p < .01, *** p < .001

Conclusions

- Both clinical and non-clinical (family and child) characteristics appear associated with prior medication usage
- Clinical characteristics alone are not dictating the prescription and use of medication for behavioral and emotional problems of children

Implications: Use by younger children

- Given what we don't know about the effects that psychotropic medications have upon development, the higher likelihood of medication use among younger children is cause for concern
- Introduction of medications with younger children may also pose a greater likelihood of long-term stigmatization and labeling

Implications: Ethnic Differences

- Access to medication may be an issue as Whites are more likely than African or Native Americans to use medications
- Perceptions about using medication to treat mental health issues may differ across ethnic groups
- The role of caregiver education and family income must also be considered in this context

Implications: Gateways to Medication Use

- Service history plays an important role in predicting medication use
  - History of day treatment, school-based service use and outpatient therapy all predict medication use
  - Medication use may be service duration dependent
- Referral from "mental health" predicts who uses medications and who doesn't
  - Being a "mental health" referral may have different implications across Phase III sites
- Having a means to pay for medications may also play a role in use

Next Steps I

- Ethnic differences in medication use requires continued examination
  - Is this an illustration of a basic disparity in access to psychiatric services?
  - Do the types of medications used differ across ethnic groups?
  - What types of psychiatric disorders are medications used to treat across ethnic groups?
  - Do gateways for medication use differ across ethnic groups?
  - Is medication use differences across ethnic groups confounded with referral source?

Next Steps II

- Further inquiry of the changes in medication use (between baseline, 6 month, and 12 month follow-ups) while receiving services in a system of care
  - Will involvement with a system of care increase the levels of medication use?
  - Will the impact of referral source upon medication use diminish across time as children and youth have more access to psychiatric services, especially those referred by juvenile justice?
  - Will the role of ethnic background diminish as a result of involvement in a system of care?
  - Is service duration related to the likelihood of medication use?

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Next Steps III

- Detailed examination of the characteristics of younger children using medications versus older children
  - Who is prescribing medications for younger children (psychiatrist, pediatrician, or family doctor)?
  - What are the diagnostic profiles of younger children compared to older children?