



Medication Use Among Youth in System of Care Initiatives: A Longitudinal Analysis

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Increase in Medication Use I

- ▶ More children and adolescents are using psychotropic medication than ever before (Jensen, Bhatara, & Vitiello, 1999)
- ▶ Increases in amount of drugs prescribed (Zito et al. 2003; Rawal Lyons, MacIntyre, & Hunter, 2004)
- ▶ 80-90% of children in hospitals and residential treatment are currently on at least on psychotropic medication (Lyons, 2000)





Increase in Medication Use II

- ▶ Associated with the treatment of specific disorders such as
 - Medication of anxiety disorders (Wilens, 2004)
 - Medication of ADHD (Olson, et al., 2003)
- ▶ Medication of conduct disorders is also increasing (Cooper et al, 2004)





Increase in Medication Use III

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





Non-clinical Factors I

- ▶ Males more likely to be treated with psychotropic medications (Goodwin et al., 2001)
- ▶ Females are more likely to use antidepressant medications (Shireman, Olson, and Dewan, 2002)
- ▶ Minority populations are less likely to use medications (Pavkov and Walrath, 2006; Martin et al. 2003, Leslie, et al. 2003)




Non-clinical Factors II

- ▶ Medication use increases with availability of payment source such as Medicaid (Pavkov and Walrath, 2006; Warner et al., 2005; Zito et al., 2003)
- ▶ Younger youth more likely to use medications in system-of-care initiatives (Pavkov and Walrath, 2006)
- ▶ Youth involved in non-clinical systems less likely to use medications (Zima, et al., 1999) and may not have access to them




Clinical Factors I

- ▶ Youths with two or more diagnoses more likely to use psychotropic medication (Warner et al., 2004)
- ▶ Youths with elevated levels of impairment are more likely to be using medication (Leslie, et al., 2003)
- ▶ Children with family histories of mental health treatment are 2 to 4 times more likely to use medications (Pavkov and Walrath, 2006)

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Medication Use: Benefits

- ▶ Connor et al. (2003) details benefits as indicated by clinicians, teachers, and parents
- ▶ Diederma, 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

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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)

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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 (Mpfu, 2002)

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Medication Use: A SOC Issue I

- ▶ 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?
 - What is the net effect of treatment upon youth?

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Medication Use: A SOC Issue II

- ▶ Advancement in psychopharmacological treatment has been an important addition to community-based programming (Jensen et al., 1996)
- ▶ Including families is imperative for SOC
 - Informing of risks and benefits (Pumariega et al., 2002)
 - Empowerment of families through inclusion in decision making (Werry and Aman, 1993) and management of medication use (Bussing et al., 2003)

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Study Objective

- ▶ Investigate the relationship between medication use status by children and six-month child and family outcomes
 - ✓ Large sample
 - ✓ Children with serious emotional disturbance
 - ✓ Compares children in three medication status categories to address the consequences of change in medication usage over the initial course of SOC service

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:** 2,645 children enrolled in the Outcome Study component of the National Evaluation with complete data on:
 - Medication usage in the 6-months prior to entry into service
 - Medication usage in the 6-months following entry into service



Study Sample Comparison

Available Data: N=7,009

Study Sample: n=2,645

	Selected (n=2,645)	Not Selected (n=4,365)
Male*	68.4%	66.6%
White*	62.9%	54.3%
Age*	M=11.8	M=12.2
Medicaid Eligibility*	71.1%	68.4%
Referral Source*		
MH	38.1%	28.5%
SCH	21.7%	22.4%
JJ	13.4%	16.2%
CW	8.5%	8.8%
SLF	9.5%	14.5%
OTH	8.9%	9.5%



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Primary Variables of Interest

Variable	Description
Medication Use	▶ Has child taken medication for behavioral or emotional symptoms in the last 6 months? Collected at baseline & 6-months. ▶ Baseline and 6-months data used to create medication use status • Medication free • Medication use continuation • Medication use change
Child Behavioral Checklist - CBCL (Achenbach 1991)	▶ Total Problem Score
Child and Adolescent Functional Assessment Scale - CAFAS (Hodges, 2000)	▶ Total Score
Caregiver Strain Questionnaire - CGSQ (Brannan, et al., 1997)	▶ Global Strain Score



All primary variables were acquired through caregiver report

Covariates*



Variable	Source of Information	Description
Demographic Information	Caregiver Report	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? At baseline and 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, family income
Child and Family Lifetime Events	Caregiver Report	Child history of suicide attempt, family history of mental illness.

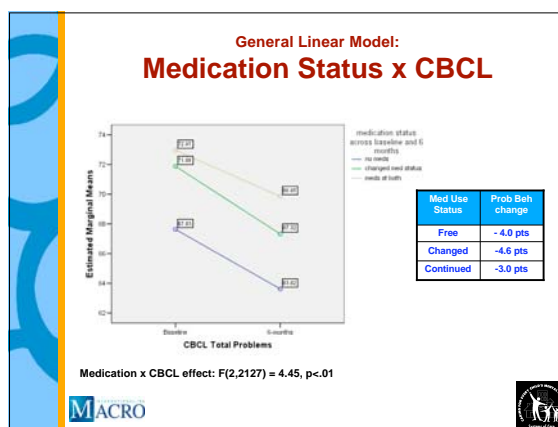
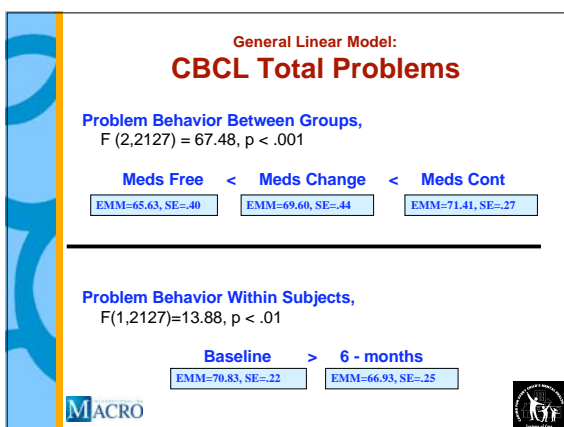
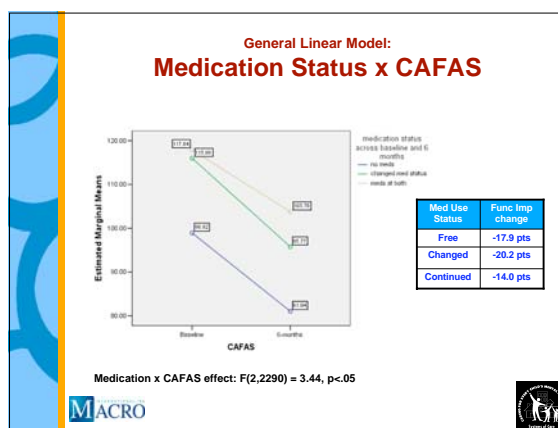
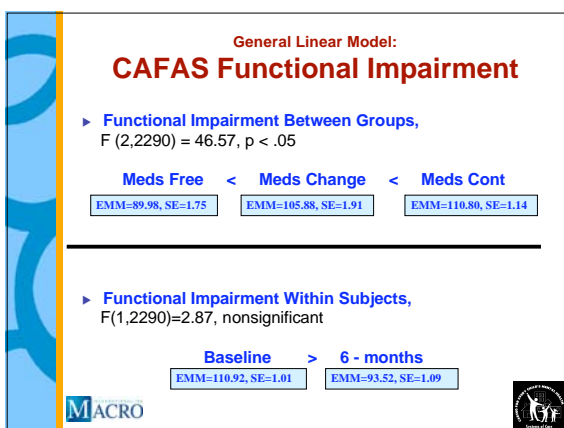
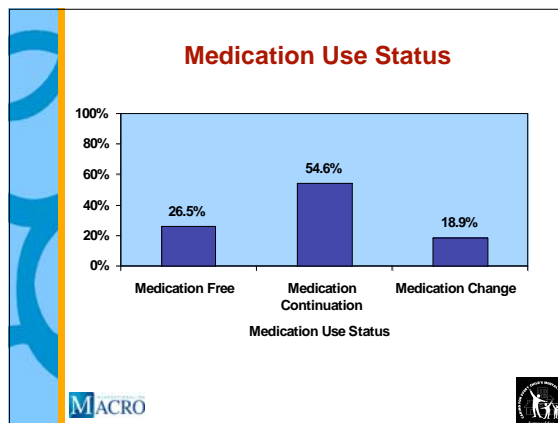
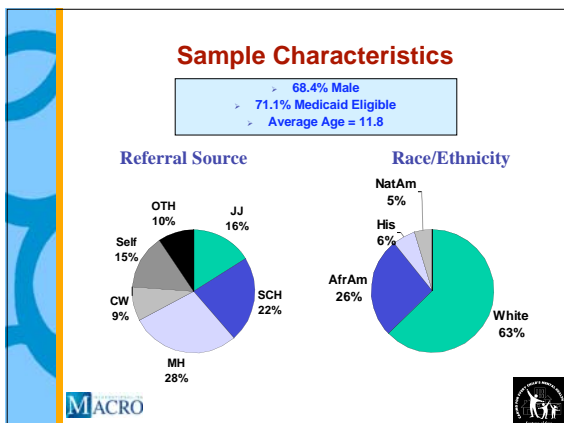
*Covariates included those variables previously found to be related to medication status at baseline

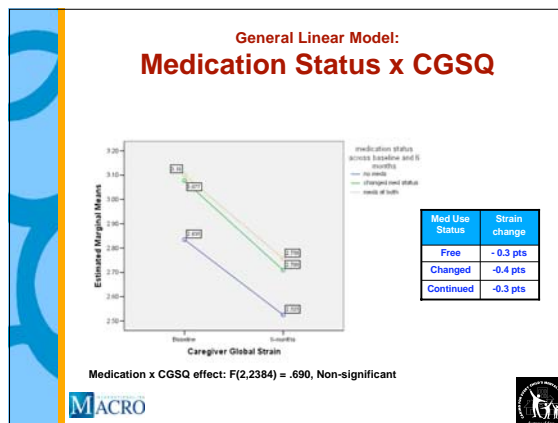
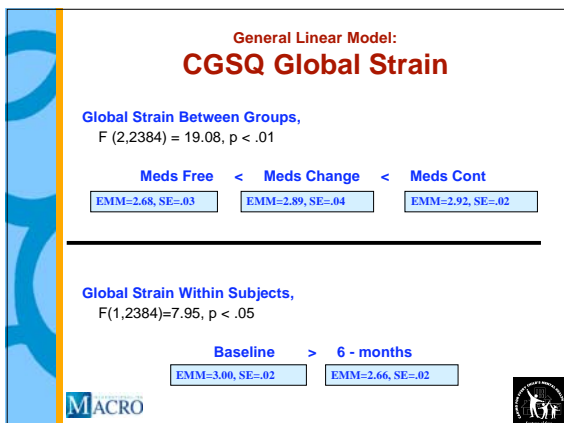



Analyses

- ▶ Three General Linear Models, WS and BS factors
 - Relationship between medication status and baseline to six month:
 - ◆ CBCL, with covariates
 - ◆ CAFAS, with covariates
 - ◆ CGSQ, with covariates
- ▶ Logistic Regression Analysis
 - Sample of children that were medication free when they entered service
 - Identify baseline predictors of medication use in the first six months of services










Logistic Regression with Sample of Children - Meds Free at Intake
Medication Use: First 6months of Service

- ▶ Native children, as compared to white, are less likely to be using meds at 6 months into service (OR=.20, p=.01)
- ▶ Children self-referred (OR=2.22, p=.04) and those referred from school (OR=2.3, p=.01), mental health (OR=2.0, p=.03), child welfare (OR=2.8, p=.02), compared to those from justice are more likely to be using meds at 6 months into service
- ▶ Children from families with a history of mental illness are more likely to be using meds at 6 months into service (OR=1.65, p=.01)
- ▶ Children with higher CBCL total problem scores at baseline are more likely to be using meds at 6 months into service (OR=1.02, p=.05)
- ▶ Children who receive a higher number of services during their first 6 months of care are more likely to be using meds at 6 months into service (OR=1.3, p=.0001)



Logistic Regression with Sample of Children - Meds Free at Intake
Medication Use: First 6months of Service

▶ **Non-significant predictors of medication use at 6 months into service:**

- Past service use (outpatient, day treatment, school-based, substance use)
- History of suicide attempt
- Family income
- CAFAS total score at intake
- Caregiver global strain (CGSQ) at intake



NOTE: All of these predictors were found to be significantly associated with medication use prior to entering service in a previous investigation.

n=800



Summary & Conclusions I

- ▶ Nearly ¼ of children in the sample used medication at some point during the first 6-months of service
 - Some entered on meds and continued
 - Some entered meds free and started meds
 - Some entered on meds and they were discontinued
- ▶ Predictors of medication use at 6-month into SOC service are not completely consistent with the factors identified as related to medication use at intake into SOC service

Summary & Conclusions II

- ▶ Access does appear to be an issue even upon entering SOC for Native-American youth
- ▶ Family history appears to be a key driver of psychotropic use for those using medication during their 1st 6-months of service SOC
- ▶ Intensity of service upon entering SOC may drive use of psychotropic medication
 - Suggests integration of psychiatry in SOC for these youth
 - Is this an indicator of a SOC process working well?

Summary & Conclusions III

- ▶ Findings consistent with literature (Leslie et al., 2003) indicating more impaired youth are receiving psychotropic medications in SOC
 - Provides insight into the diversity of need being addressed in SOC work
 - ◆ Supports the notion that psychotropic medications enable many impaired youth to remain in the community

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Summary & Conclusions IV

Trajectories of improvement evident for all three groups in this analysis

- Suggests improvement upon enrollment of each of the groups in SOC
- Interesting trajectories emerge for each of the three groups
 - ◆ Children whose psychotropic medication status changes after entering the SOC have the highest rate of improvement in impairment and problem behavior
 - Does this inform us of the net effect of psychotropic medication in the SOC? And the effectiveness of consistent medication monitoring?

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Implications I

- ▶ Impairment is associated with psychiatric involvement in SOC work
- ▶ SOC involvement may provide better access to psychotropic medication for some groups but not others
- ▶ Appears that service intensity may an important role in psychiatric involvement
- ▶ SOC may not increase likelihood of psychotropic medication use for youth who have behavioral disorders (i.e. conduct)

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Implications II

- ▶ SOC seems to work for all three groups and distinguishes treatment processes for those with varying levels of impairment
 - Assuming that “wraparound” is the most dominant approach to system of care work....all wraparound is not the same wraparound

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Next Steps

- ▶ Need to know more about the response of SOC to children of varying degrees of impairment
- ▶ Need to know more about the touch and feel of medication usage
 - Role of the psychiatrist
 - Role of the family
 - Role of service intensity
 - Frequency of (re)evaluation
- ▶ Need to explore the role of diagnosis and psychotropic medication in SOC work
- ▶ More complete understanding of the maintenance function of psychotropic medication in SOC work
 - Role of medication over the longer course of treatment—more than six months

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