

# Multisystemic Therapy (MST): An Overview of Clinical and Cost-Effectiveness

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Charles M. Borduin, Ph.D.

Director, Missouri Delinquency Project

Professor, Department of Psychological Sciences

University of Missouri-Columbia

# Missouri Delinquency Project Mission

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- ◆ To develop, validate, and study the dissemination of clinically effective and cost effective mental health services for youths presenting violent and other serious antisocial behaviors



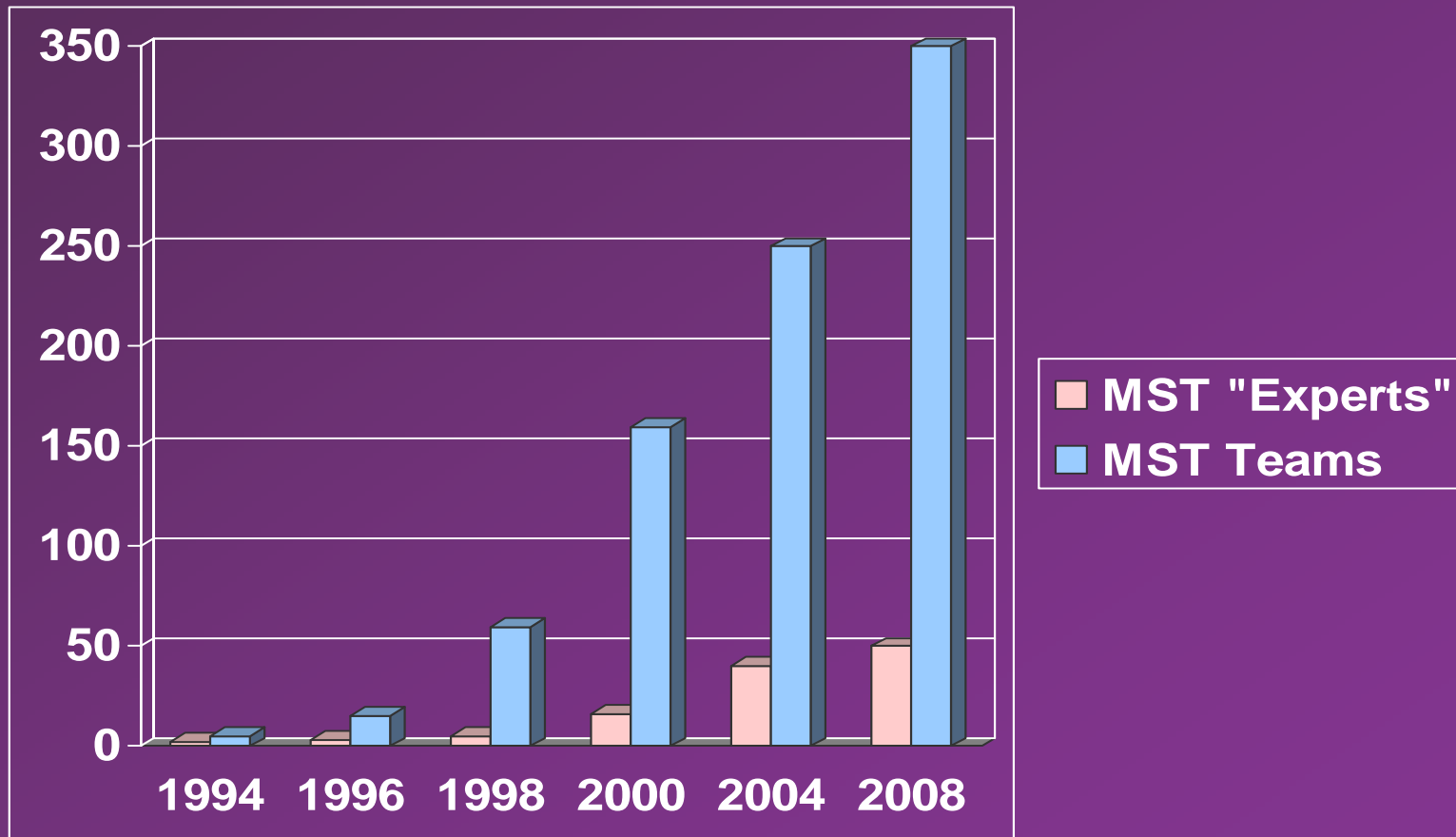
# But Where is Missouri Located?

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# Dissemination of MST

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# Where is MST being used?

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- ◆ Over 30 states in the U.S.
- ◆ State-wide programs in Connecticut, Hawaii, Ohio, and South Carolina
- ◆ Nation-wide program in Norway (25+ teams)
- ◆ Other international replications: Australia, Canada, Denmark, Ireland, England, Sweden, Switzerland, Netherlands, and New Zealand

# Structure of MST

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- ◆ Treatment targets serious juvenile offenders at high risk for out-of-home placement and their families
- ◆ MST team includes 3-4 master's level therapists and a 50% time supervisor
- ◆ Therapists provide services 24/7
- ◆ Therapists carry caseloads of 4-6 families each for an average of 4 months
- ◆ Services are provided in homes and other community settings
- ◆ MST team is supported by intensive quality assurance system to optimize youth outcomes

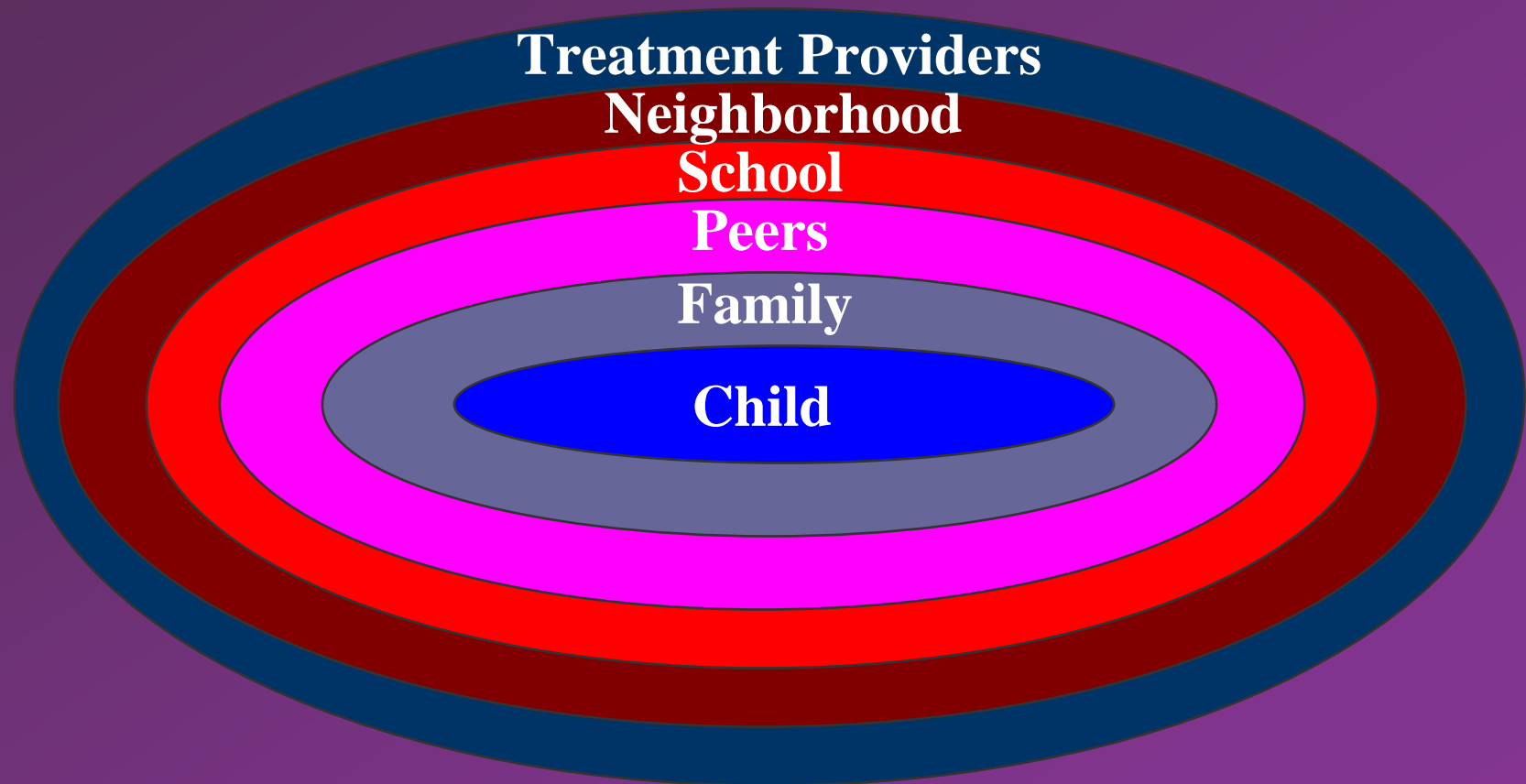
# Critical Components of MST

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- ◆ Addresses known causes of antisocial behavior comprehensively -- at youth, family, peer, school, and community levels
- ◆ Provides intensive treatment where problems occur -- in homes, schools, and neighborhoods
- ◆ Integrates evidence-based interventions
- ◆ Views caregivers as central to achieving favorable outcomes for their youth -- resources are devoted to empowering caregivers to be more effective with their adolescents
- ◆ Uses an intensive quality assurance system to support MST program fidelity and youth outcomes
- ◆ MST provider organizations are accountable for family engagement and youth outcomes

# Ecological Model

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# Principles of MST

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1. Finding the Fit
2. Positive & Strength-Focused
3. Increasing Responsibility
4. Present-Focused, Action-Oriented, & Well-Defined
5. Targeting Sequences of Behavior
6. Developmentally Appropriate
7. Continuous Effort
8. Evaluation & Accountability
9. Generalization

Specified in Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998 – Guilford Press

# Overview of MST Outcomes Associated with:

Criminal Behavior and Violence  
Juvenile Sexual Offending

# Evidence Supporting MST: Published Outcomes for Criminal Behavior

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## 9 Randomized Trials and 1 Quasi-Experimental Trial with Serious Juvenile Offenders

- ◆ Decreased recidivism (25% to 70%) for as long as 13.7 years post treatment
- ◆ Decreased self-reported criminal offending
- ◆ Decreased days in out-of-home placement (47% to 64%)
- ◆ Decreased behavior problems
- ◆ Improved family relations, peer relations, & school attendance
- ◆ Decreased symptomatology in youths & parents
- ◆ Considerable cost savings (Washington State Institute for Public Policy)

# Study 1: Borduin, Mann, Cone, et al. (1995)

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## Sample:

- ◆ 200 serious and violent juvenile offenders
- ◆ Averaged 4.2 previous criminal arrests
- ◆ 49% were violent offenders (i.e., rape, attempted rape, sexual assault, assault & battery with intent to kill, aggravated assault)
- ◆ 100% were previously incarcerated
- ◆ Average age = 14.8 years
- ◆ 67% male, 33% female
- ◆ 30% African American, 70% Caucasian
- ◆ 47% lived with only one parental figure

# Service/Treatment Options

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- Multisystemic Therapy
  - 77 completers
  - 15 dropouts
- Individual Therapy
  - 63 completers
  - 21 dropouts
- Usual probation services for refusers
  - 24 refusers

# Instrumental Outcomes at Posttreatment

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## MST was significantly more effective at:

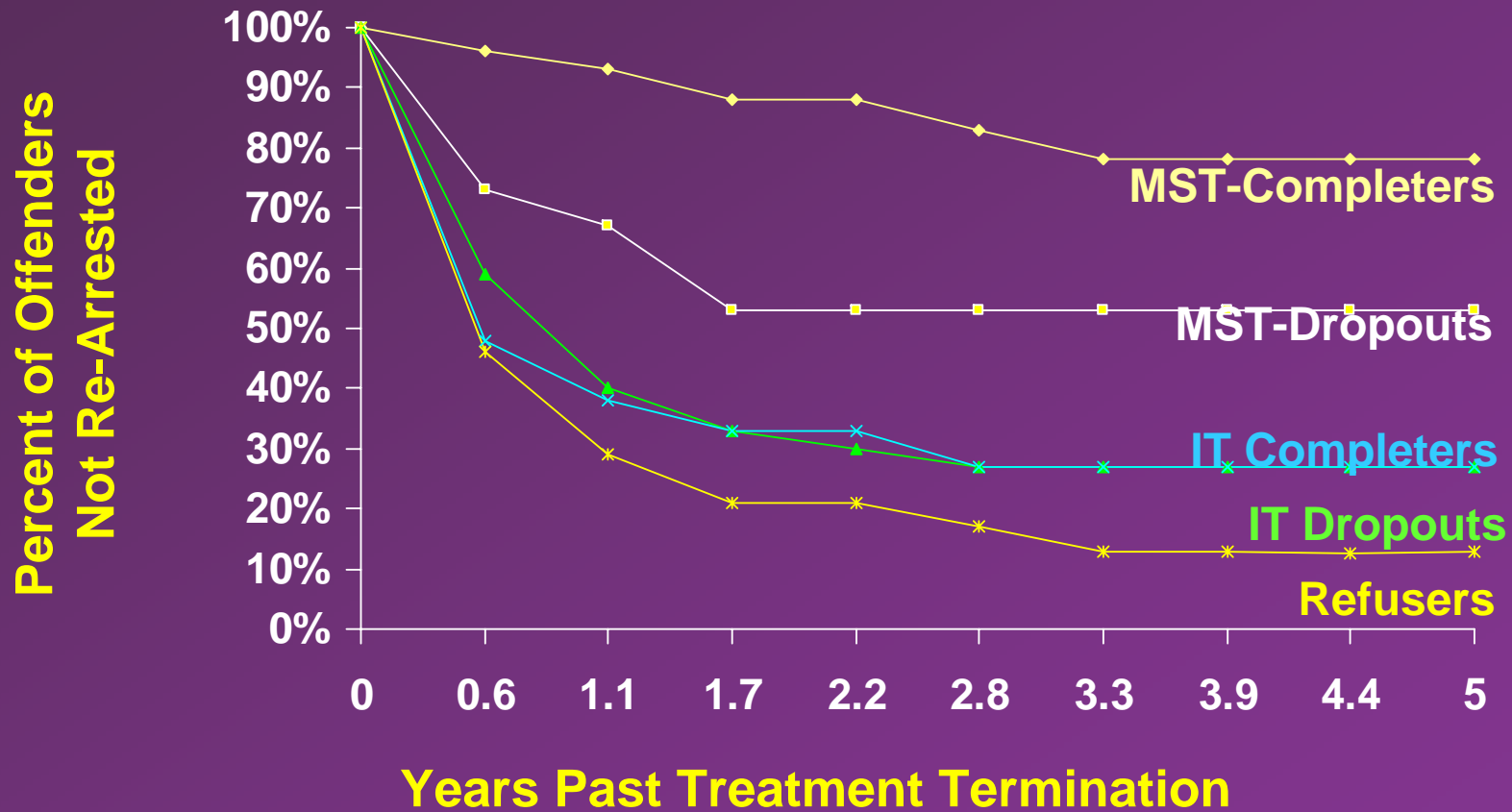
- ◆ Increasing family supportiveness
- ◆ Increasing family cohesion and adaptability
- ◆ Decreasing family hostility
- ◆ Decreasing parental, youth, and sibling symptomatology
- ◆ Decreasing behavior problems in youth

# 4-Year Recidivism

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- Multisystemic Completers 22.1%
- Multisystemic Dropouts 46.6%
- Individual Therapy Completers 74.1%
- Individual Therapy Dropouts 74.1%
- Treatment Refusers 87.5%

# Time to First Arrest



## Study 2: Schaeffer & Borduin (2005)

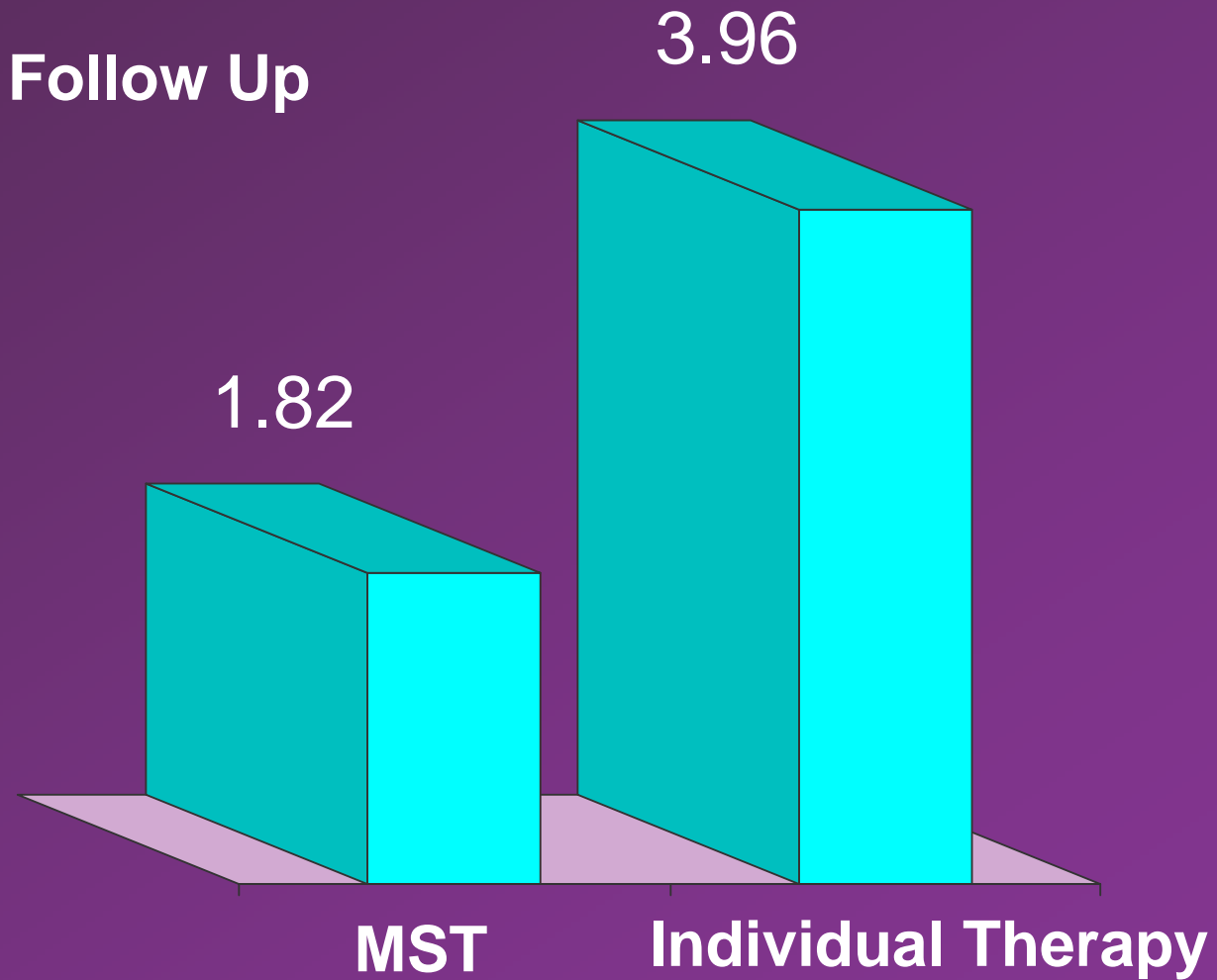
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- ◆ 13.7-year follow-up
- ◆ Attempted to locate all participants ( $N = 176$ ) who were randomly assigned to MST or individual therapy in Borduin et al. (1995) clinical trial
- ◆ Successfully located 165 (94%) of participants
- ◆ Average age at follow-up: 28.8 years (range = 24 to 32 years)
- ◆ Outcomes examined: criminal recidivism, days incarcerated and on probation in adulthood

# All Arrests

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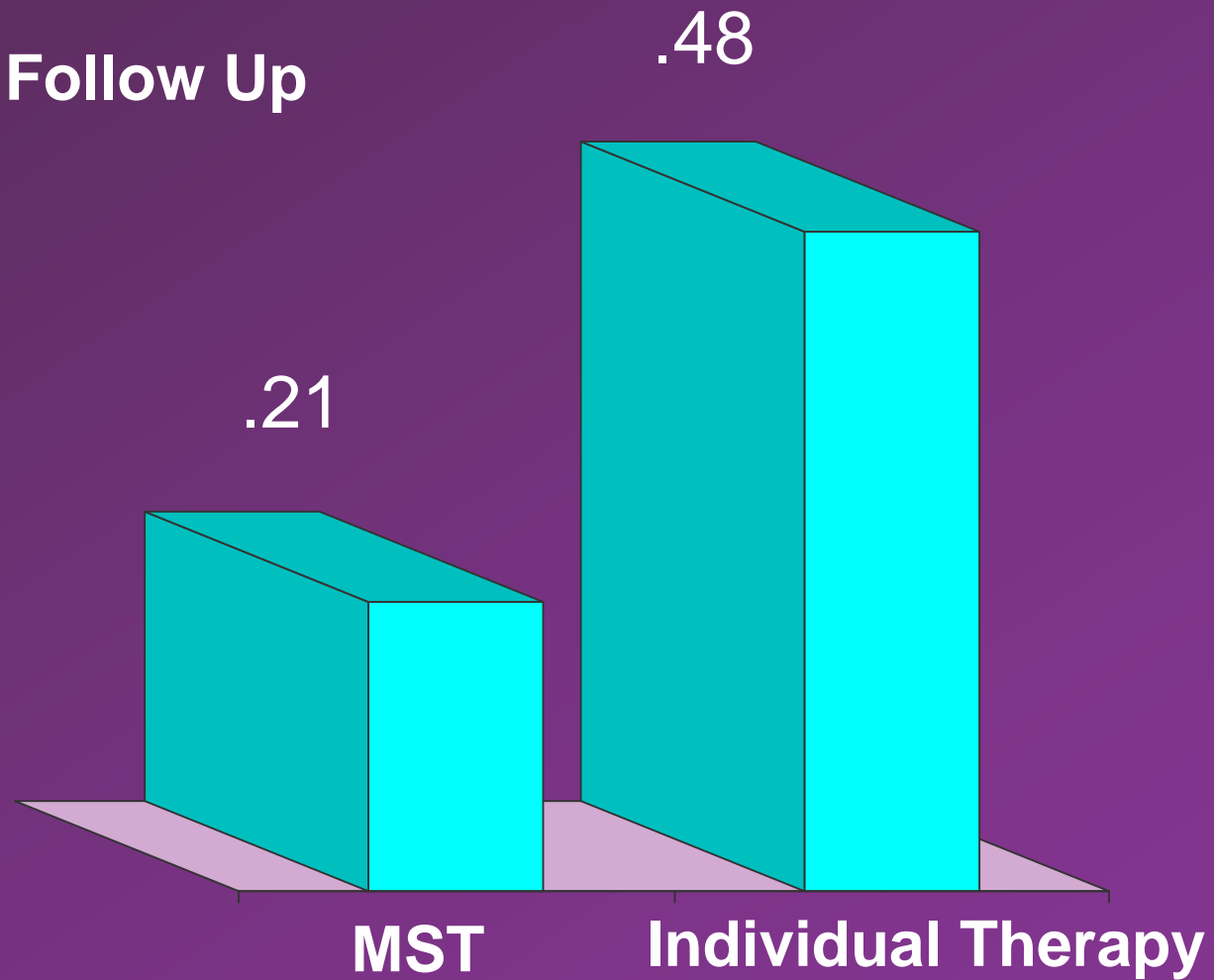
- 13.7-Year Follow Up



# Violent Arrests

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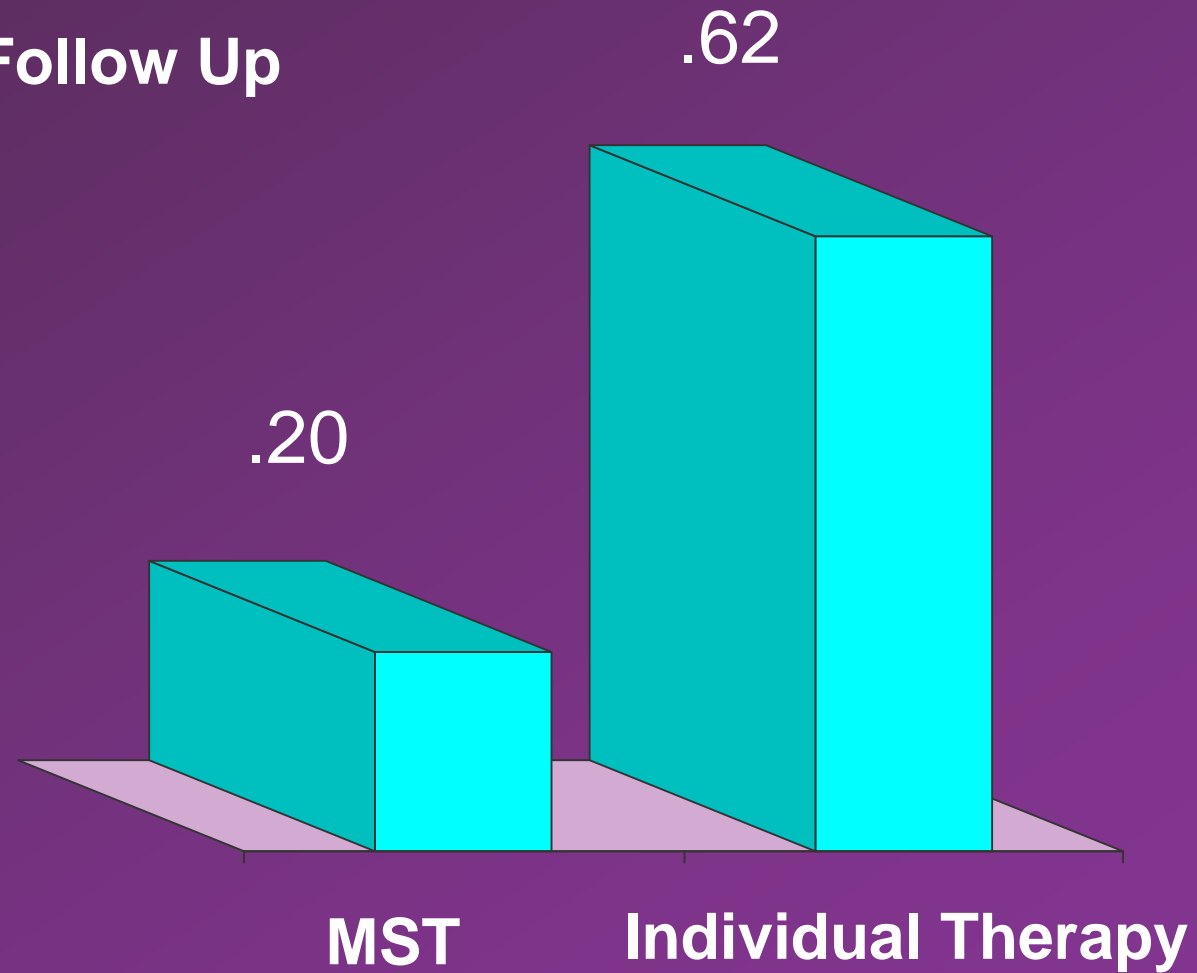
- 13.7-Year Follow Up



# Drug-Related Arrests

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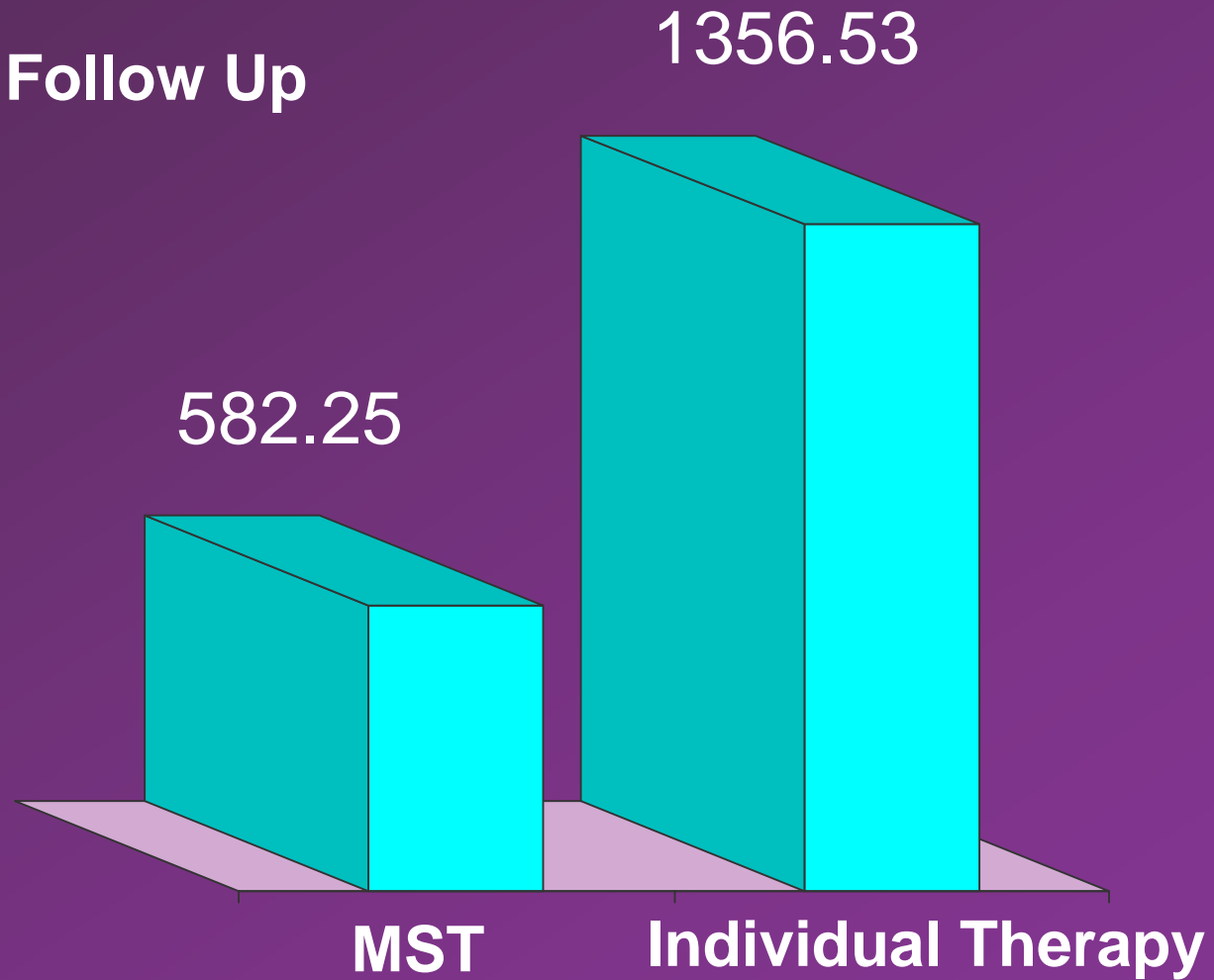
- 13.7-Year Follow Up



# Adult Days Confined

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- 13.7-Year Follow Up



## Study 3: Klietz, Borduin, & Schaeffer (2008)

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- ◆ Long-term cost-benefits to taxpayers and crime victims at 13.7-year follow-up of serious and violent juvenile offenders treated in Borduin et al. (1995) clinical trial
- ◆ Based on the Washington State Institute for Public Policy (2001) Cost-Benefit Model
- ◆ This model was developed to identify ways to lower crime and lower total costs to taxpayers and crime victims
- ◆ Our estimates reflect Missouri costs (whenever available) to taxpayers and average national costs to crime victims

# Estimating the Cost of One Criminal Offense

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## Taxpayer Costs:

- ◆ Police and sheriffs' offices
- ◆ Superior courts and county prosecutors
- ◆ Local adult jails and community supervision
- ◆ Local juvenile detention and supervision
- ◆ State juvenile rehabilitation administration
- ◆ State Department of Corrections

## Crime Victim Costs:

- ◆ Monetary
- ◆ Quality of Life

# Estimating the Cost of Treatment Programs

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## ◆ Personnel

- ◆ Therapists' salaries
- ◆ Supervisor's salary
- ◆ Support staff salaries

## ◆ Operating expenses

- ◆ Rent
- ◆ Utilities
- ◆ Phone
- ◆ Supplies
- ◆ Therapist travel to homes, schools, etc.

## ◆ Converted to base year 2007 dollars using the U.S. Gross Domestic Product Deflator (2001)

# MST Cost-Benefits Per Offender at 13.7-Year Follow-Up

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	Assumes One Victim per Arrest	Assumes Multiple Victims per Arrest
Taxpayer Cost-Benefit	\$40,329	\$40,329
Crime Victim Cost-Benefit	\$9,777	\$161,530
<b>Total Cost-Benefit of MST</b>	<b>\$50,106</b>	<b>\$201,859</b>

# MST Benefit-to-Cost Ratio at 13.7-Year Follow-Up

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- ◆ The estimated benefit-to-cost ratio for MST ranges from:

**\$6.25**

to

**\$27.14**

Taxpayer Benefits  
Only

Taxpayer & Crime Victim  
Benefits

That is, **\$1.00** spent on MST today can be expected to return **\$6.25** to **\$27.14** to taxpayers and crime victims in the years ahead

# Adaptations of MST for New Clinical Populations

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## Randomized Trials

- 2 with substance abusing or dependent juvenile offenders
- 2 with youths presenting serious emotional disturbance
- 1 with maltreating families (2nd trial in progress)
- 1 with adolescents with poorly controlled diabetes
- 3 with juvenile sexual offenders

Randomized trials for other adaptations are in progress

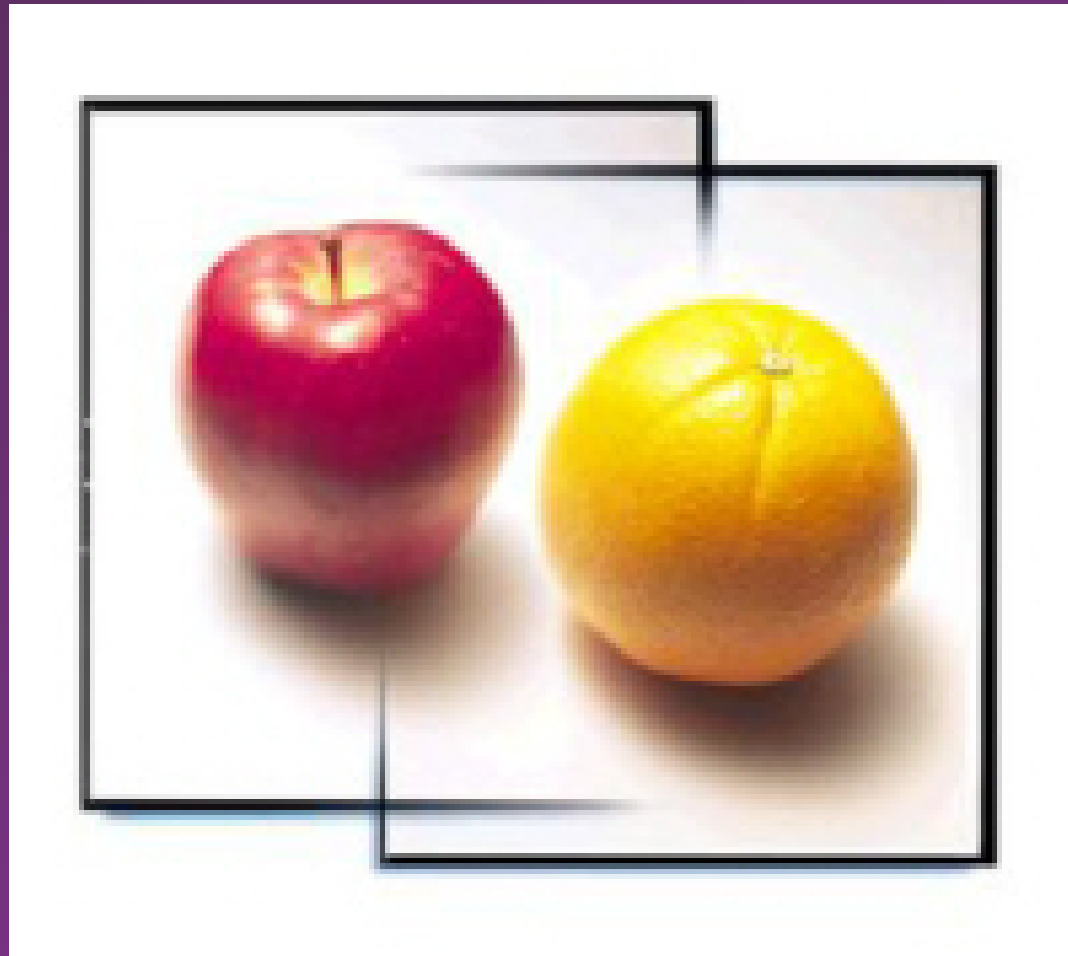
# Adapting MST for Juvenile Sexual Offenders: Effective Treatment is Needed

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- ◆ Males under age 18 account for 19% of all arrests for forcible sexual crimes in the United States (Federal Bureau of Investigation, 2006)
- ◆ Juveniles with histories of both sexual and nonsexual offenses are at high risk of becoming life-course-persistent offenders (Moffitt, 1993)
- ◆ Total costs of a lifetime of crime range from \$1.5 to \$1.8 million (Foster et al., 2006)
- ◆ Most programs use individual and group treatment approaches and are patterned after existing interventions with adult sexual offenders
- ◆ Usual treatment approaches for juvenile sexual offenders have little empirical support

# Are Juvenile Sexual Offenders Different from Other Serious Juvenile Offenders?

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# Correlates of Juvenile Sexual Offending

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Most studies have methodological limitations, but findings suggest that multiple risk factors are linked with sexual offending in juveniles:

- ◆ Individual factors (e.g., externalizing and internalizing problems)
- ◆ Family factors (e.g., low warmth, high conflict, low monitoring)
- ◆ Parental problems (e.g., spousal violence, substance abuse)
- ◆ Peer relations (e.g., immaturity, involvement with deviant peers)
- ◆ School performance (e.g., low achievement, school suspension, learning disabilities)

Recent studies (e.g., Van Wijk et al., 2005; Ronis & Borduin, 2007) suggest that juvenile sexual offending and nonsexual offending are linked with the same risk factors



# Implications of Research Findings for the Design of Effective Interventions

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- ◆ Because the correlates and causes of juvenile sexual offending and those of other forms of serious juvenile offending may be more similar than dissimilar, effective treatments for delinquency (e.g., MST) hold promise in treating juvenile sexual offenders
- ◆ Usual treatment approaches address few of the correlates/causes of juvenile sexual offending and do little to promote youths' competencies in real world settings



# Clinical Adaptations of MST for Treating Juvenile Sexual Offenders

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- ◆ Ensuring community safety: Help family develop plan for risk reduction and relapse prevention
- ◆ Recognizing and handling denial by caregivers and offender
- ◆ Evaluating and addressing offender's grooming strategies (if any exist) and cognitive variables that may contribute to offending
- ◆ Assessing within-family victimization issues and determine related treatment needs
- ◆ Interventions that focus on developing social skills and friendships may be required

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# Findings from Randomized MST Efficacy and Effectiveness Studies With Juvenile Sexual Offenders

# Study 1: Borduin, Henggeler, Blaske, & Stein (1990)

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## ◆ Sample

- ◆ 16 male adolescents ( $M = 14.2$  years old) and their families participated
- ◆ Most of the offenders had at least 2 arrests for sexual offenses (69% rape or sexual assault, 31% molestation) and all had been previously incarcerated

## ◆ Design

Random assignment to:

- ◆ Individual Counseling or
- ◆ Multisystemic Therapy

## ◆ Results of 3-Year Follow Up

MST was significantly more effective at:

- ◆ Preventing sexual offending (recidivism was 12.5% for MST vs. 75.0% for Individual Counseling)
- ◆ Preventing other criminal offending (25.0% vs. 50.0%)
- ◆ Preventing incarceration (0.0% vs. 37.5%)

# Study 2: Borduin, Schaeffer, & Heiblum (2007)

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## Sample Characteristics

- ◆ 48 adolescents ( $M = 14.0$  years old) and their families participated
  - ◆ 24 had sexual offenses against peer or adult victims (i.e., sexual assault, rape)
  - ◆ 24 had sexual offenses against younger (by 3+ years) child victims (i.e., molestation)

## Design

- ◆ Pretest--posttest control group design
- ◆ Random assignment to MST or usual services (sex-offender-specific, cognitive-behavioral group and individual therapy)
- ◆ Follow-up into early adulthood ( $M$  age = 23.4 years)

## Multiagent, multimethod battery used to assess:

- ◆ Instrumental outcomes (youth, family, peer, school)
- ◆ Ultimate outcomes (criminal activity, incarceration)

# Instrumental Outcomes at Posttreatment

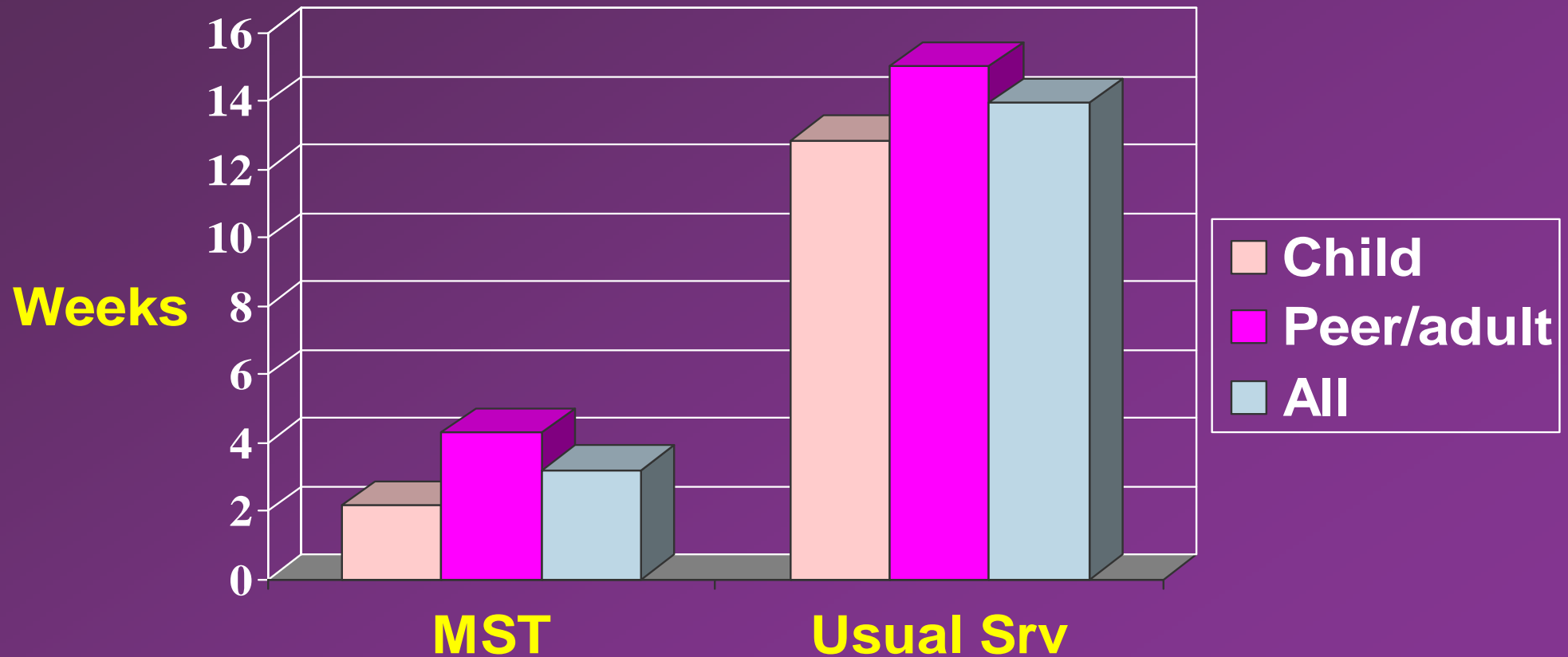
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## MST was significantly more effective at:

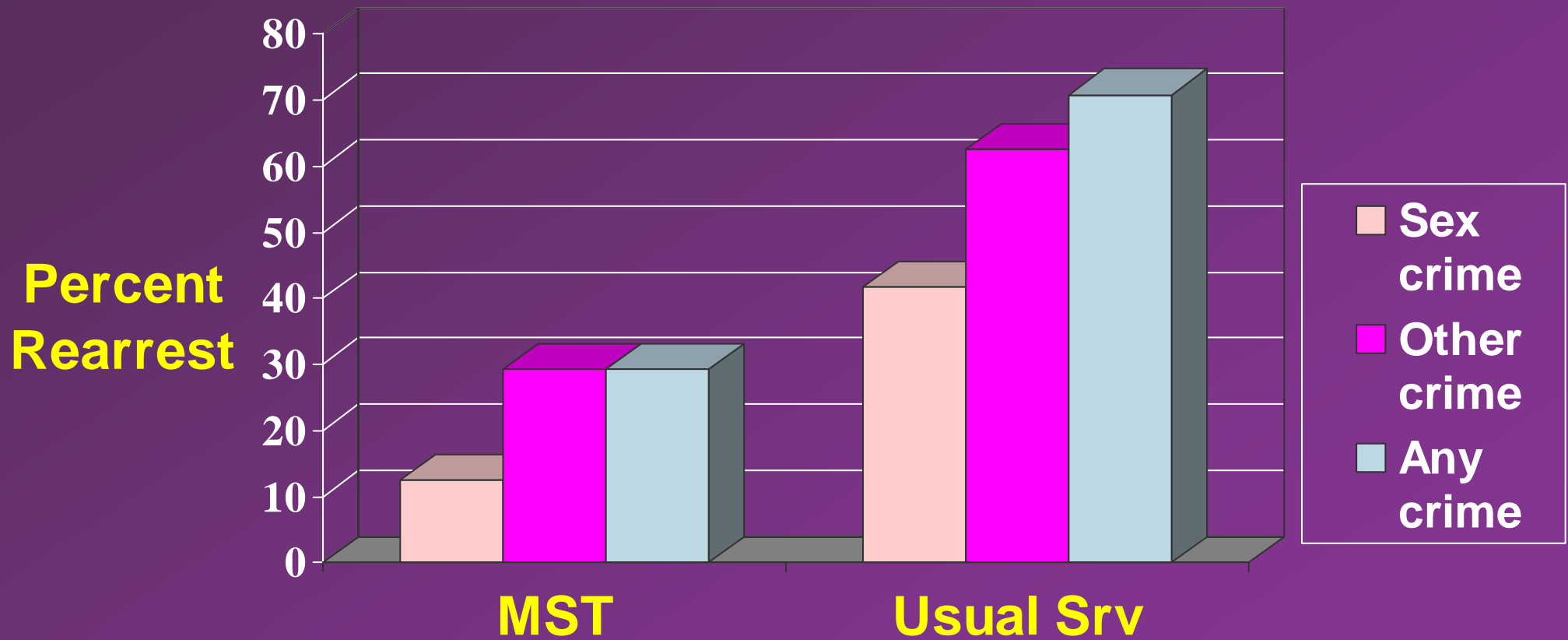
- ◆ Decreasing behavior problems in youth
- ◆ Decreasing youth criminal offending (self-reported)
- ◆ Decreasing parent and youth symptoms
- ◆ Increasing family cohesion and adaptability
- ◆ Decreasing youth association with deviant peers
- ◆ Increasing youth association with prosocial peers
- ◆ Decreasing hostility and aggression in the peer relations of sex offenders with peer/adult victims
- ◆ Improving youth grades in school

# Time In Out-of-Home Placements One Year after Referral

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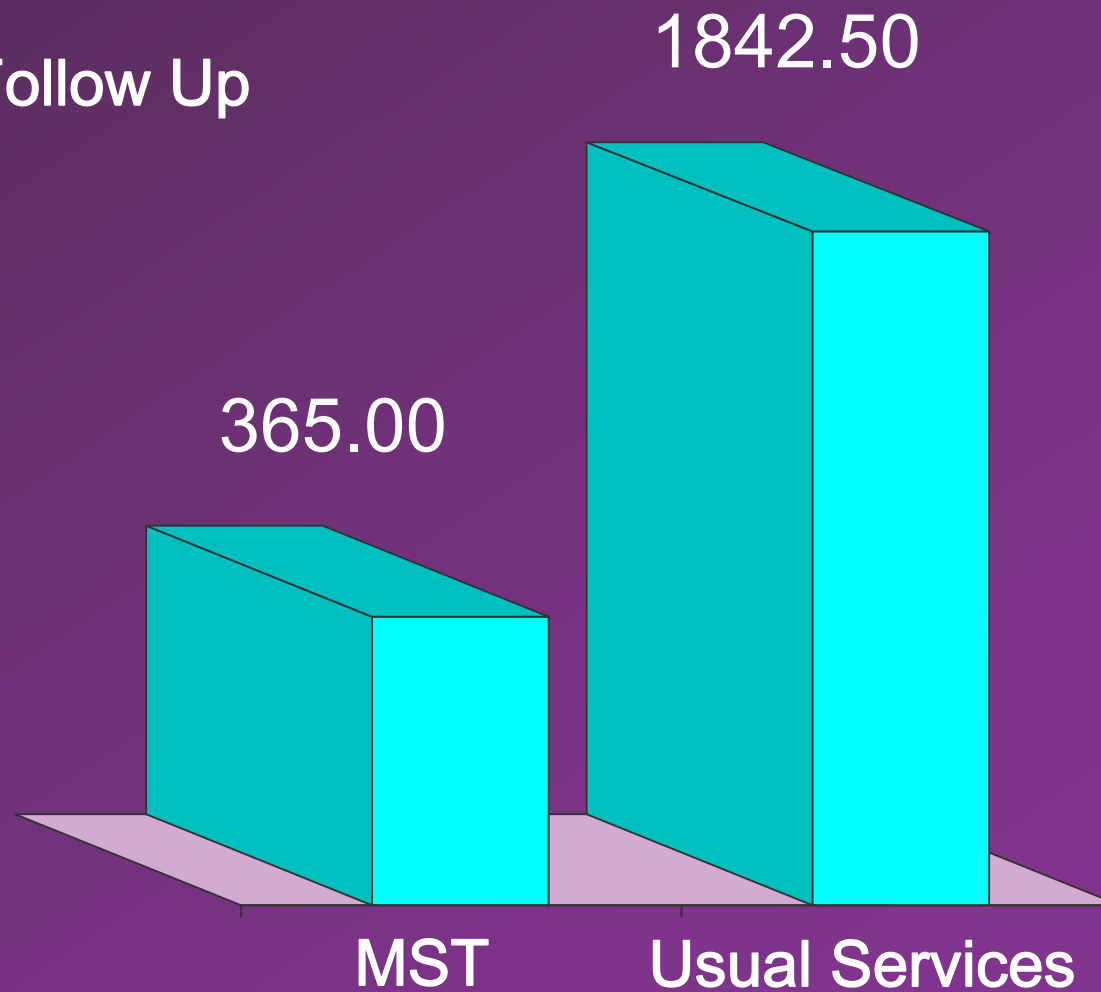
# Recidivism Rates at 8.9-Year Follow-Up



# Adult Days Confined

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- 8.9-Year Follow Up



# MST Cost-Benefits Per Offender at 8.9-Year Follow-Up

(Klietz, Borduin, & Schaeffer, 2007)

	Offender with Younger Child Victim	Offender with Peer or Adult Victim	Total Sample
Taxpayer	\$67,615	\$171,882	\$119,748
Crime Victim	\$35,692	\$90,389	\$63,040
Total Cost-Benefit (MST)	\$103,307	\$262,271	<b>\$182,789</b>

# MST Benefit-to-Cost Ratio at 8.9-Year Follow-Up

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- ◆ The estimated benefit-to-cost ratio for MST ranges from:

**\$12.40**

to

**\$38.52**

Taxpayer Benefits  
Only

Taxpayer & Crime Victim  
Benefits

That is, **\$1.00** spent on MST today can be expected to return **\$12.40** to **\$38.52** to taxpayers and crime victims in the years ahead

# Study 3: MST Effectiveness Study with Juvenile Sex Offenders

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- ◆ A Chicago-based study that began in September 2003 examined 131 juvenile sex offenders. Recruitment ended in fall 2006.
- ◆ NIMH Funded
- ◆ Random assignment to MST or usual services (sex-offender-specific outpatient group treatment provided by the Department of Probation).

# Summary of Preliminary Results

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- ◆ 7 of 8 hypotheses have preliminary support. Relative to usual services participants, MST participants evidence:
  - ◆ Reduced delinquency
  - ◆ Reduced sexually inappropriate behavior
  - ◆ Reduced alcohol and substance use
  - ◆ Reduced psychiatric symptoms
  - ◆ Reduced out-of-home placements
  - ◆ Improved family functioning
  - ◆ Improved school attendance
- ◆ One hypothesis lacks support thus far (i.e., groups improved at the same rate)
  - ◆ Improved peer relations

# Bases of MST Success:

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1. Addresses multidetermined nature of serious antisocial behavior
2. High ecological validity of intensive services
3. Intensive quality assurance (improvement) system
4. Integration of evidence-based intervention models
5. Caregiver viewed as key to long-term outcomes
6. Program accountability for family engagement and outcomes

# 1. MST Addresses Multidetermined Nature of Serious Antisocial Behavior

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**Across the social ecology, MST comprehensively addresses risk factors, including:**

- **Family relations** (e.g., low warmth, high conflict, low monitoring)
- **Caregiver functioning** (e.g., substance abuse, criminality)
- **Association with deviant peers**
- **Individual youth characteristics** (e.g., hostile attributions, antisocial attitudes)
- **School performance** (e.g., poor grades, dropout)
- **Indigenous family support network**
- **Neighborhood characteristics** (e.g., low organizational participation, high mobility, criminal subculture)

## 2. MST Services Have High Ecological Validity and are Intensive

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### **Services are provided in home, school, & community settings:**

- Overcomes most barriers to service access
- Increases validity of assessment data and outcome data
- Helps engage family in treatment
- Enhances treatment generalization

### **Services are intensive:**

- Low caseloads (4-6 families)
- 24 hour/7 day availability of therapist, and 60 to 100 hours of therapist-family contact over 4 months
- Therapists work in teams with significant clinical support

### 3. Intensive Quality Assurance System

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**Purpose:** To promote treatment fidelity, achieve outcomes, and address barriers to outcomes

- ◆ Specified treatment protocol
- ◆ Specified supervisory protocol
- ◆ Specified consultation protocol
- ◆ On site 5-day orientation training
- ◆ Quarterly booster training
- ◆ Clinicians work within MST teams for peer support

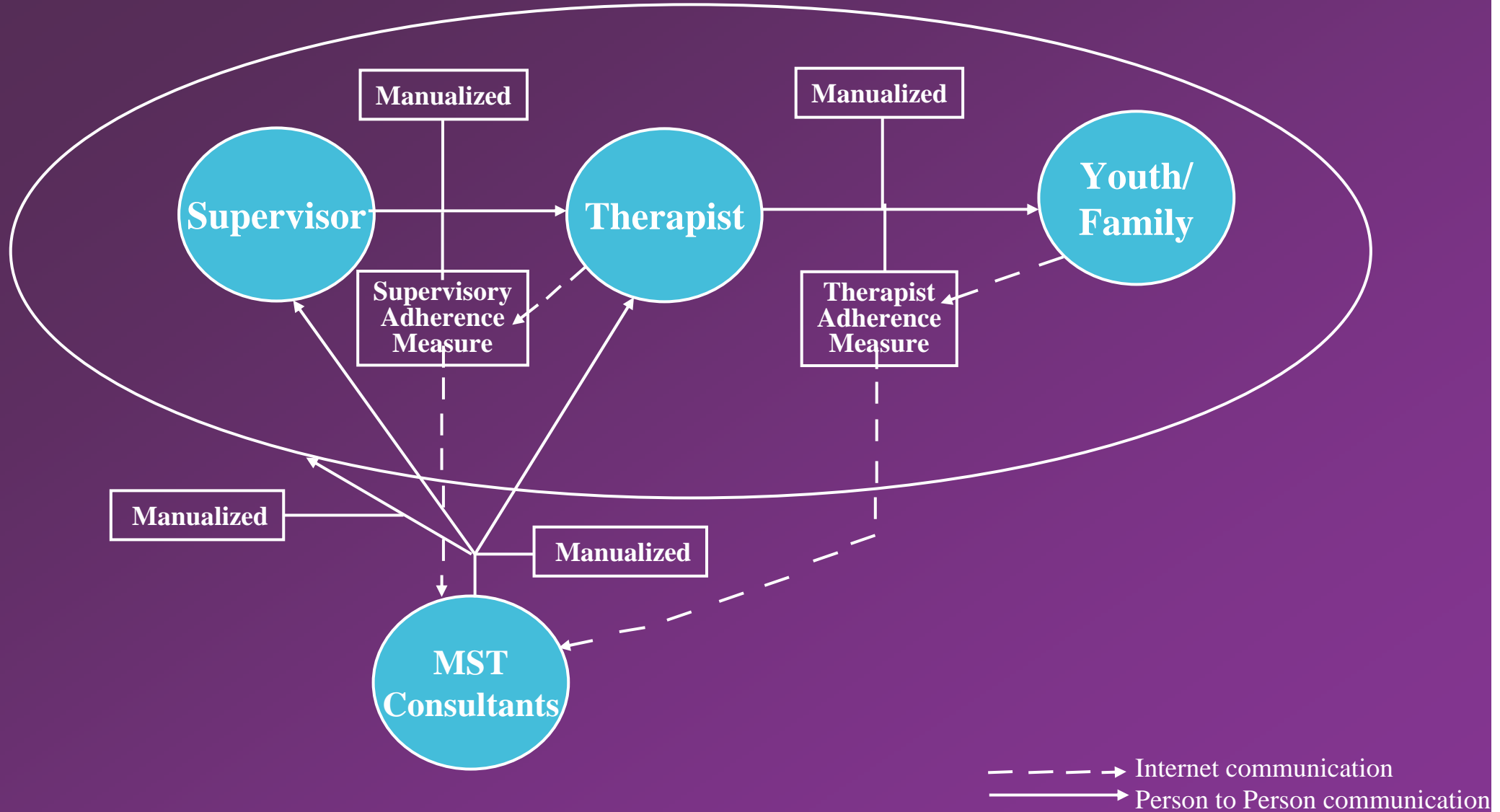
## Quality Assurance System - continued

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- ◆ On site clinical supervision from MST trained supervisor
- ◆ Weekly consultation with MST expert (conference call)
- ◆ Ongoing consultation to address organizational barriers to program success
- ◆ Standardized adherence ratings from caregiver
- ◆ Expert coding of audiotaped treatment sessions for adherence

# MST QUALITY ASSURANCE SYSTEM

## Organizational Context



## 4. Intervention Strategies Used In MST

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### **MST Programs Rely on Evidence-Based Interventions:**

- ◆ Pragmatic family therapies (structural, strategic)
- ◆ Cognitive-behavioral therapies
- ◆ Pharmacological interventions (e.g., for ADHD)
- ◆ Behavioral interventions (e.g., for parental discipline)
- ◆ Community Reinforcement Approach (Budney & Higgins)

## But, Evidence-Based Interventions Are Used Within:

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- ◆ Social ecological conceptual model
- ◆ Program commitment to remove barriers to service access (e.g., meeting times that are convenient for the family, 24/7 on-call systems, etc.)
- ◆ Intensive quality assurance
- ◆ View that caregivers are key to long-term outcomes
- ◆ Program philosophy that emphasizes provider accountability for outcomes

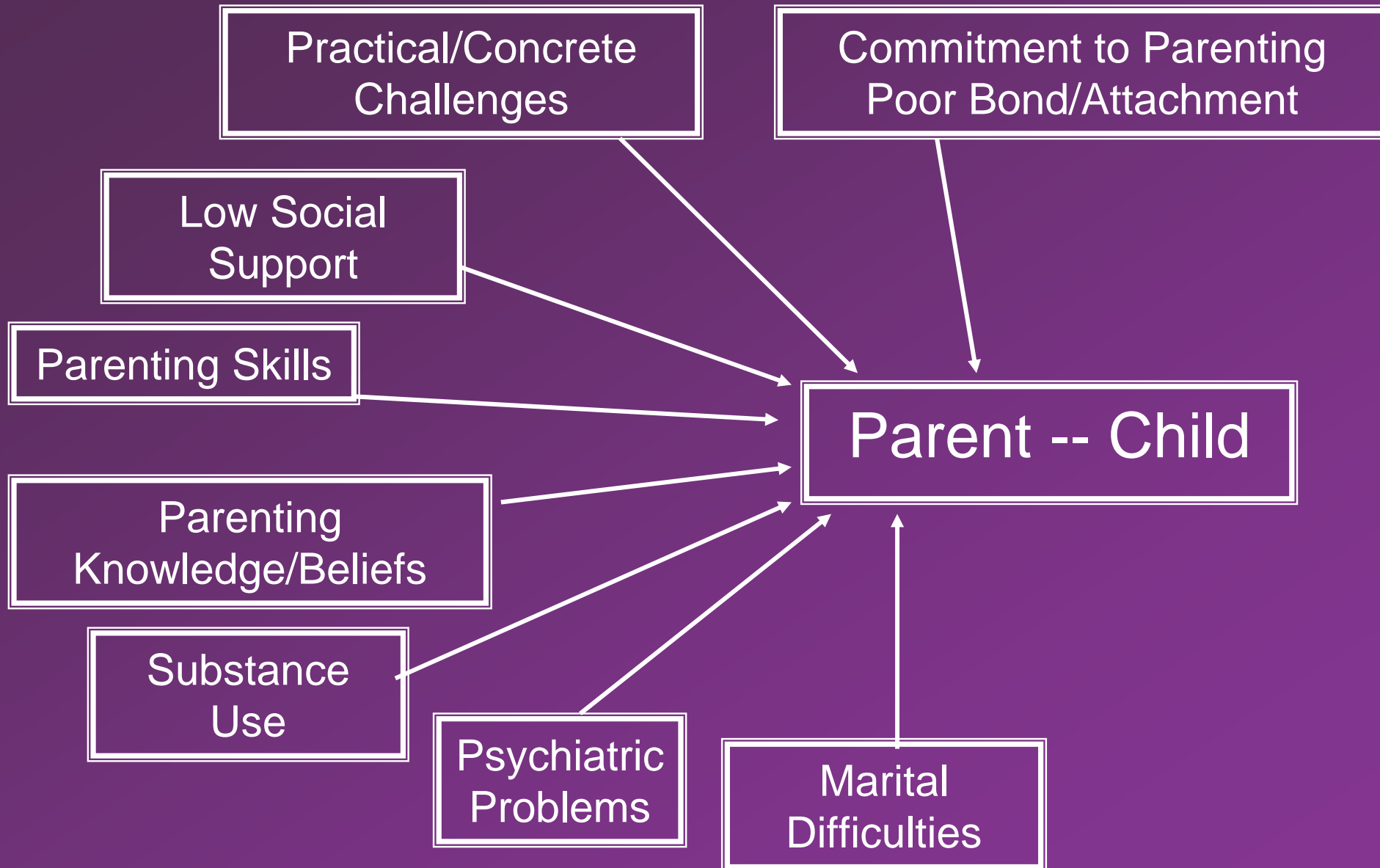
## 5. Caregivers are Viewed as the Key to Long-Term Outcomes

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### Hence:

- ◆ Most clinical resources are devoted to developing the caregiver's capacity to achieve goals
- ◆ Significant clinician attention is devoted to identifying and overcoming barriers to effective parenting (e.g., caregiver mental health problems, substance abuse, stress)
- ◆ Focus on family versus youth

# Barriers to Effective Parenting



## 6. MST Programs are Accountable for Engagement and Outcomes

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High Accountability Requires Access to Resources:

- ◆ Good salaries
- ◆ Low caseloads
- ◆ Strong clinical support
- ◆ Strong organizational support
- ◆ Sharing in program success (i.e., reducing placements)
- ◆ Opportunity to enhance competencies when success rates are low

# Science to Practice: Transport of MST to Community Settings

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## ◆ MST Services

- ◆ Supports public and private agencies in MST program development with juvenile offenders

## ◆ MST Associates

- ◆ Supports public and private agencies in MST program development with juvenile sexual offenders

## ◆ MST Institute

- ◆ Focuses on quality assurance and outcome tracking

## ◆ MST programs serve about 14,000 youths annually

# Major Challenges to Dissemination

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- Funding structures often favor incarceration and residential treatment over community-based services
- Effective clinical services differ significantly (e.g., home- and family-based; 24/7 availability of therapists) from the status quo
- Training and quality assurance standards emphasize treatment fidelity and provider accountability, which contrast with existing practices and are often not desired
- Perhaps the key research and implementation issue is determining what promotes the effectiveness of dissemination sites, which have varying outcomes

# Policy Implications

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## 1. Shift Funding from Ineffective Institution-Based Services (and Narrowly Focused Community-Based Services) to Intensive and Effective Community-Based Services

- 70% of current service dollars spent on out-of-home placements
- Savings can fund:
  - higher salaries for effective clinicians
  - prevention programs
  - early intervention programs

## Policy Implications - continued

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### 2. Change Training and Clinical Practice

- Currently:
  - minimal outcome accountability
  - “train and hope” approach to technology transfer dominates
  - professional degrees do not ensure that empirically validated treatments are used
- Change to performance contracts to promote:
  - accountability
  - outcomes
  - use of evidence-based practices

# Questions or More Information

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**Research Related:** Charles Borduin  
BorduinC@missouri.edu

**Dissemination/Site Development:** Richard Munsch  
860-348-1938  
munschy@sbcglobal.net

