Multisystemic Therapy (MST) with Children and Families: Progress on MST Adaptations in the USA

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Missouri Delinquency Project Mission

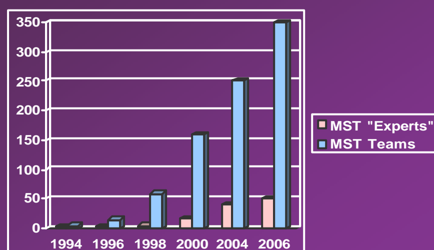
- To develop, validate, and study the dissemination of clinically effective and cost effective mental health services for youths presenting violent and other serious antisocial behaviors

But Where is Missouri Located?

Other MST-Related Organizations

- Family Services Research Center
  - Research Center at the Medical University of South Carolina
- MST Services
  - Organization focused on helping public and private agencies to implement MST with juvenile offenders
- MST Associates
  - Organization focused on helping public and private agencies to implement MST for sexual offending and problem sexual behavior youth
- MST Institute
  - Focuses on quality assurance and outcome tracking

Dissemination of MST



Where is MST being used?

- 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, Netherlands, and New Zealand

What is MST?

- An intensive (low caseloads), comprehensive (addresses multiple risk factors), community- and family-based treatment aimed at decreasing youth problems and preventing costly out-of-home placements
- Views caregivers as the key to achieving favorable clinical outcomes for their youth – resources are devoted to empowering caregivers to be more effective with their adolescents
- Integrates evidence-based intervention techniques (e.g., cognitive-behavioral therapy, strategic and structural family therapy, behavior therapy)
- Uses an intensive quality assurance system to support treatment fidelity

Delivery of MST

Treatment Site	In the field (home, school, neighborhood)
Treatment	Total behavioral health care
Treatment Duration	3 to 5 months in most cases
Case Management Function	Service provider, not service broker
Provider	Single therapist (supported by team)
Clinical Staff : Client Families	1 : 4-6 (about 15 families/year/therapist)
Staff Availability	24 hr/7 day/wk team availability
Treatment Outcome	Responsibility of staff & agency
Expectations of Outcome	Max. effort by family & staff toward goals

Principles of MST

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

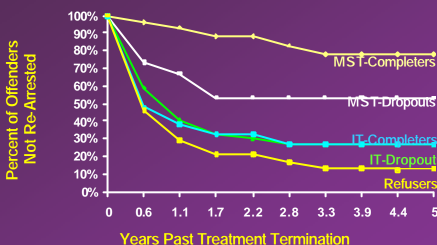
Specified in Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998 – Guilford Press

Evidence Supporting MST: Published Outcomes for Criminal Behavior

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

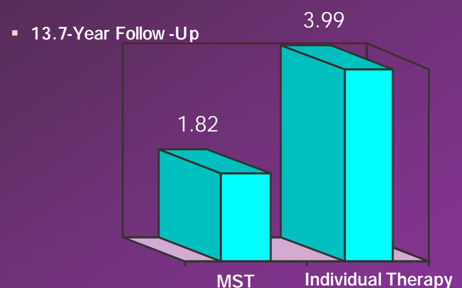
- Decreased recidivism (25% to 70%) for as long as 13.7 years post treatment
- Decreased self-reported criminal offending
- Decreased days in out-of-home placement (47% to 64%)
- Decreased behavior problems
- Improved family relations, peer relations, & school attendance
- Decreased symptomatology in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

Missouri Delinquency Project: Time to First Arrest



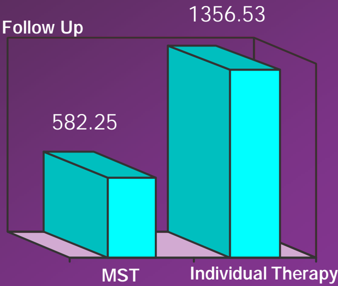
Missouri Delinquency Project: All Arrests

- 13.7-Year Follow-Up

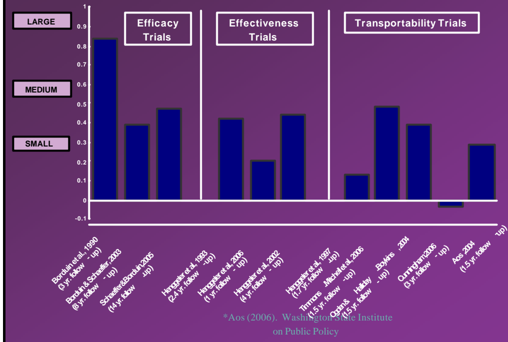


Missouri Delinquency Project: Adult Days Confined

- 13.7-Year Follow Up



MST Delinquency Clinical Trials Effect Sizes*



*Aos (2006). Washington State Institute on Public Policy

Adaptations of MST for New Clinical Populations

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

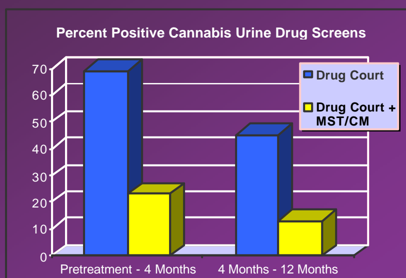
Randomized trials for other adaptations are in progress

MST Substance-Related Clinical Outcomes

- 1st Clinical Trial: Diagnosed substance abusing/dependent juvenile offenders
  - Decreased self-reported substance use
  - Increased attendance in regular school settings
  - 98% (57 of 58 families) treatment completion
  - Incremental costs of MST offset by savings incurred from reductions in days of out-of-home placement at 12 months
- 2nd Clinical Trial: 161 juvenile offenders meeting DSM-IV criteria for substance abuse or dependence. Randomized to:
  - Family court and treatment as usual (TAU)
  - Drug court and treatment as usual (TAU)
  - Drug court and MST
  - Drug court and MST with contingency management

  (5-year follow-up in progress)

Juvenile Drug Court Randomized Trial



MST Mental Health Outcomes

- 1st Clinical Trial: 113 children and adolescents approved for emergency psychiatric hospitalization (randomly assigned to MST or inpatient hospitalization). MST participants demonstrated:
  - Decreased youth externalizing problems
  - Improved family functioning
  - Increased school attendance
  - At 4 months post referral, MST youth had a 72% reduction in days hospitalized and a 49% reduction in days in other out-of-home placements
  - Higher consumer satisfaction
  - Positive effects dissipated by 1.5 years
- 2nd Clinical Trial: Replication study in Hawaii (*N* = 36) had similar results

MST Outcomes Associated with Child Maltreatment

- 1st Clinical Trial: 43 families with a parent referred for child abuse or neglect were randomly assigned to MST or parent training.
  - MST was more effective than parent training in restructuring parent-child relations.
- 2nd Clinical Trial: Currently evaluating the effectiveness of MST versus group behavioral parent training with 160 families with an indicated case of child physical abuse

MST Outcomes Associated with Chronic Health Care Problems (Deborah Ellis, Wayne State University)

- 1st Clinical Trial: 127 inner-city adolescents with chronically poorly controlled type 1 diabetes. MST youths:
  - Increased blood glucose testing
  - Decreased inpatient admissions
  - Improved metabolic control
  - Decreased medical care costs
  - Decreased diabetes stress
- Other projects underway for HIV, asthma, and obesity

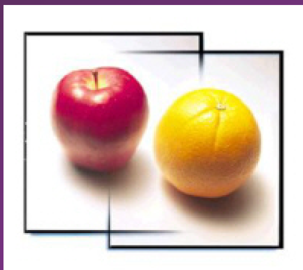
Adapting MST for Juvenile Sexual Offenders: Effective Treatment is Needed

- Males under age 18 account for 19% of all arrests for forcible sexual crimes in the United States (Federal Bureau of Investigation, 2005)
- The offense/arrest ratio for male juveniles is approximately 25:1 for sexual crimes (Elliott, 1995)
- 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 (Cohen, 1998)

Juvenile Sexual Offender Treatment: Focus on the Individual Youth

- Safer Society identified 937 juvenile sexual offender treatment programs in 2002
- Most programs use individual and group treatment approaches and are patterned after existing interventions with adult sexual offenders (i.e., cognitive restructuring, empathy training, deviant arousal reduction, relapse prevention)
- These treatment programs usually last 12 to 24 months and are delivered in residential settings or outpatient clinics
- Usual treatment approaches for juvenile sexual offenders have little empirical support
- Concerns about potential iatrogenic effects of usual treatments abound (Chaffin, 1998; Dodge et al., 2006)

Are Juvenile Sexual Offenders Different from Other Serious Juvenile Offenders?



Correlates of Juvenile Sexual Offending

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

- 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

International Assn for the Treatment of Sexual Offenders: Principles of Care for Juvenile Sexual Offenders (October 2006)

- Youth are best understood within their family and social contexts
- Assessment and treatment should be developmentally based
- Assessment and treatment should focus on the youth's strengths
- The development of sexual interest and orientation is dynamic
- Youth sex offenders are a diverse population and should not be treated with a "one size fits all" approach
- Treatment should be broad-based and comprehensive
- The youth and family should be treated with respect and dignity
- Sexual offender registries and community notification should not be applied to youths
- Effective interventions result from research guided by specialized clinical experience

Clinical Adaptations of MST for Treating Juvenile Sexual Offenders

- **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**

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

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

- **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)

Sample Characteristics:

- 48 sexual offenders and their families participated
  - 24 had one or more arrests for sexual offenses against peer or adult victims (i.e., sexual assault, rape)
  - 24 had one or more arrests for sexual offenses against younger (by 3 or more years) child victims (i.e., molestation)
- Youths averaged 4.3 arrests (all offenses)
- Mean age of youths was 14.0 years; 66.7% were White and 33.3% were African American; 70.8% lived with one parent

Method

Design:

- Pretest--posttest control group design
- Eligible youths were referred in yoked pairs and randomly assigned to MST or usual services (sex-offender-specific, cognitive-behavioral group and individual therapy)
- Average length of MST = 30.8 weeks
- Follow-up into early adulthood (M age = 23.4 years)

Multiagent, multimethod battery used to assess:

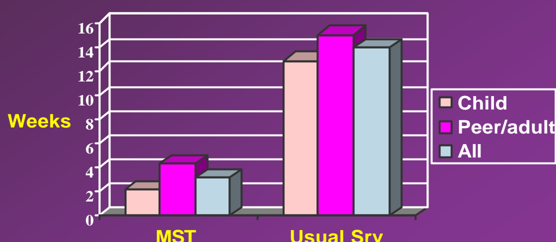
- Instrumental outcomes (youth, family, peer, school)
- Ultimate outcomes (criminal activity, incarceration)

Instrumental Outcomes at Posttreatment

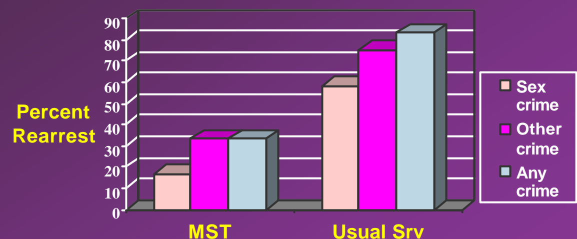
MST was significantly more effective at:

- 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

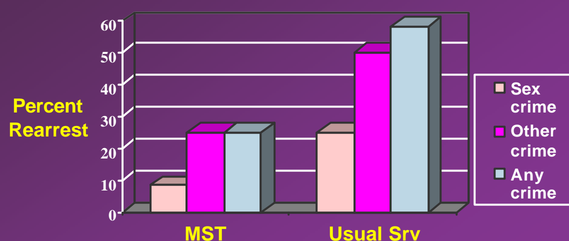
Time In Out-of-Home Placements One Year after Referral



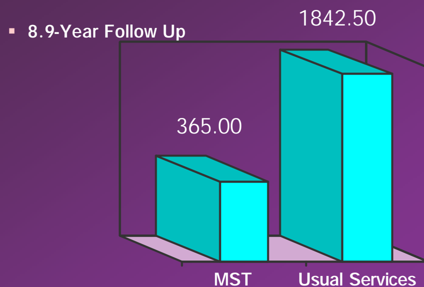
Recidivism Rates for Sex Offenders with *Peer/Adult Victims* at 8.9-Year Follow-Up



Recidivism Rates for Sex Offenders with *Child Victims* at 8.9-Year Follow-Up



Adult Days Confined



Does Clinical Effectiveness → Cost-Effectiveness?

(Klietz, Borduin, & Schaeffer, 2007)

- Cost-benefit model based on research by the Washington State Institute for Public Policy (2001)
- This model was developed to identify ways to lower crime and lower total costs to taxpayers and crime victims
- Estimates reflect Missouri costs (whenever available) to taxpayers and average national costs to crime victims

Estimating the Cost of One Criminal Offense

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

- 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 2006 dollars using the U.S. Gross Domestic Product Deflator (2001)

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

	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	$182,789

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

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

$12.40 to **$38.52**

Taxpayer Benefits Only — Taxpayer & Crime Victim Benefits

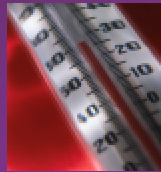
That is, **$1.00** spent on MST today can be expected to return **$12.40** to **$38.52** to taxpayers and crime victims in the years ahead

Study 3: MST Effectiveness Study with Juvenile Sex Offenders

- A Chicago-based study that began in September 2003 is examining 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).

Update on Study Status (as of October 2007)

- 194 youth referred to study
  (95% males; mean age = 14.6 years; 80% of victims are female)
- 178 youth were eligible
  (92% eligibility rate)
- 131 youth and families recruited
  (74% recruitment rate)
- 7 families withdrew
  (95% retention rate)
- 63 randomized into TAU; 68 into MST



Summary of Preliminary Results

- 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

Next Steps

- Final analyses will be completed in January 2008. Results will ultimately be based on 5 assessment points covering 24 months
- Extend follow-up an additional 5 years
- To inform future efforts to transport MST adaptations for juvenile sex offenders to community-based providers, we began several pilot sites in 2005 and 2006 to test the feasibility of the adaptations in established MST programs

Some Possible Reasons for These Encouraging Outcomes:

- MST targets known correlates of sexual offending in youths: individual factors, family relations, peer relations, school performance, community factors
- MST is family driven and occurs in the youth's natural environment
- MST providers are accountable for outcomes
- MST is manualized with substantial quality-assurance procedures

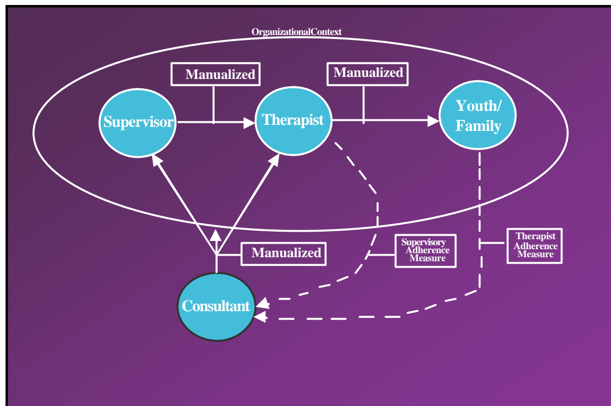
Community-Based Dissemination Efforts for MST with Juvenile Sexual Offenders (JSO)

Purpose: To achieve positive clinical outcomes through the implementation of training and supervision protocols used in the clinical trials of MST -JSO (i.e., quality assurance)

- Specified MST and MST-JSO treatment protocols
- Specified supervisory protocol
- Specified consultation protocol
- 5-day orientation training in MST model
- 2-day training in MST-JSO adaptations
- Quarterly booster training
- Clinicians work within MST -JSO teams for peer support

Dissemination - continued

- On site clinical supervision from MST -JSO trained supervisor
- Weekly consultation with MST -JSO 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



Transportability Pilots

Purpose: To evaluate whether we can develop/train a 2nd generation expert in the model/adaptation

Pilot Projects

- Colorado (1 team, year 2, funded by DSS)
- Connecticut (1 team, year 3, funded by DCF)
- Maine (3 teams, same provider, year 2, funded by DHHS)
- Ohio (2 teams, different providers, year 1, local and state funding)

Mature Transport: Toward Broader Dissemination

Purpose: To evaluate whether we can more broadly replicate 2nd generation transport (and eventually 3rd generation transport) with adherence to the model/adaptation and with high quality outcomes

Projects Proposed

- Florida (2 teams, different providers, federal funding)
- Maine (1 team, federal funding)
- New York (2 teams, different providers, federal funding)
- Ohio (2 teams, different providers, state and federal funding)
- Oregon (1 team, federal funding)

Projects Planned

- Colorado (1 team, state funding)
- Louisiana (1 team, state funding)
- Missouri (2 teams, different providers, state funding)
- Tennessee (1 team, state funding)

Major Challenges to Dissemination

- 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

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

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

Policy Implications - continued

3. **Widespread Transport of Evidence-Based Treatments Will Likely Require:**

- A public health perspective involving legal and fiscal mandates
- Strategies targeting multiple levels of the practice context, including payers and policymakers
- Collaboration between government and practice
- A continuous quality improvement system

Questions or More Information

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