

MST is an internationally recognized program for at-risk youth and their families. For more than 30 years, MST has consistently demonstrated positive outcomes with chronic juvenile offenders. Based on the program's success, rigorous randomized trials were conducted to explore the feasibility and effects of adaptations of MST with other target populations. Results have been positive for treating problem sexual behavior, child abuse and neglect, substance abuse, serious emotional disturbances and chronic health care conditions. This document highlights the many areas of MST research and proven outcomes with traditional MST and MST clinical adaptations as well as research on the transport of MST to community practice settings.

RESEARCH HIGHLIGHTS

- 26 published outcome, transportability and benchmarking studies
- Yielding more than 50 published, peer-reviewed journal articles
- More than 5,200 families involved across all studies
- 20 randomized trials
- 11 independent evaluations (not involving an MST model developer)
- 11 studies using standard MST with juvenile offenders:
 - 8 randomized trials
 - 7 independent studies
 - 5 international studies
 - 2 benchmarking studies
 - One randomized trial with two ultra-long term follow-up studies of 14 and 22 years post treatment (average participant age of 28 and 37 years respectively)
- 2 studies with substance-abusing or -dependent juvenile offenders (MST-Substance Abuse)
- 3 studies with juvenile sexual offenders (MST-Problem Sexual Behavior)
- 3 studies with youths presenting serious emotional disturbances (MST-Psychiatric)
- 2 studies with maltreating families (MST-Child Abuse and Neglect)
- 3 studies with adolescents with chronic health care conditions (MST-Health Care), all independent
- 2 large-scale transportability (dissemination) studies

More than 5,200 families involved across all studies

26 published outcome, transportability and benchmarking studies

MST research demonstrates

- Long-term re-arrest rates reduced by 25-70 percent
- Out-of-home placements reduced by 47-64 percent
- Improved family functioning
- Decreased substance use among youth
- Fewer mental-health problems for youth
- Higher levels of client satisfaction

MST's positive results are long lasting

A 22-year, follow-up study by the Missouri Delinquency Project showed youths who received MST had

- 36 percent fewer felony arrests
- 75 percent fewer violent felony arrests
- 33 percent fewer days incarcerated
- 37 percent fewer divorce, paternity and child support suits

MST has proven the importance of treatment adherence

A large, 45-site study on the transport of MST involving almost 2,000 families, and more than 450 therapists and 80 supervisors concluded:

- High therapist adherence can reduce the number of youth criminal charges by 36 percent at 2.3 years after treatment
- High supervisor adherence can reduce the number of youth criminal charges by 53 percent at 2.3 years after treatment

(See Study #11 on Pages 8-9)

MST has been effectively transported to community practice settings

- MST currently has more than 500 active programs
- Adherence measures demonstrate that MST is being delivered with high levels of fidelity
- Outcomes in community practice settings are similar to those of university-based trials (See Studies #18 and #21)

| Standard MST Studies with Serious Juvenile Offenders | | | |
|--|--|-----------------------|---|
| Study # | Authors | Design | Population |
| 1 | Henggeler et al. (1986) | QE | Delinquents |
| 4 | Henggeler, Melton & Smith (1992) | RCT | Violent & chronic juvenile offenders |
| 5 | Borduin et al. (1995) | RCT | Violent & chronic juvenile offenders |
| 6 | Henggeler, Melton et al. (1997) | RCT | Violent & chronic juvenile offenders |
| 12 | Ogden & Halliday - Boykins (2004) | RCT - independent | Norwegian youth with serious anti-social behavior |
| 16 | Timmons - Mitchell et al. (2006) | RCT - independent | Juvenile offenders (felons) at imminent risk of placement |
| 18 | Ogden, Hagen & Andersen (2007) | BM - independent | Norwegian youth with serious anti-social behavior |
| 20 | Sundell et al. (2008) | RCT - independent | Swedish youth with conduct disorder |
| 21 | Curtis, Ronan, Heblum & Crellin (2009) | BM - independent | Juvenile offenders in New Zealand |
| 25 | Glisson et al. (2010) | RCT/CRO - independent | Juvenile offenders |
| 26 | Butler et al. (2011) | RCT - independent | British juvenile offenders |

| MST-Substance Abuse Studies (MST-SA) | | | |
|--------------------------------------|--------------------------------------|--------|---|
| Study # | Authors | Design | Population |
| 8 | Henggeler, Pickrel & Brondino (1999) | RCT | Substance-abusing & -dependent delinquents |
| 17 | Henggeler et al. (2006) | RCT | Substance-abusing & -dependent juvenile offenders in Drug Court |

| MST-Problem Sexual Behavior Studies (MST-PSB) | | | |
|---|---|--------|---------------------------|
| Study # | Authors | Design | Population |
| 3 | Borduin, Henggeler, Blaske & Stein (1990) | RCT | Juvenile sexual offenders |
| 9 | Borduin, Schaeffer & Heblum (2009) | RCT | Juvenile sexual offenders |
| 22 | Letourneau et al. (2009) | RCT | Juvenile sexual offenders |

| MST Child Abuse and Neglect Studies (MST-CAN) | | | |
|---|----------------------------------|--------|-------------------------------|
| Study # | Authors | Design | Population |
| 2 | Brunk, Henggeler & Whelan (1987) | RCT | Maltreating families |
| 24 | Swenson et al. (2010) | RCT | Physically abused adolescents |


| MST-Health Care Studies (MST-HC) | | | |
|----------------------------------|----------------------------|-------------------|---|
| Study # | Authors | Design | Population |
| 13 | Ellis et al. (2004) | RCT - independent | Adolescents with poorly controlled type 1 diabetes |
| 14 | Ellis, Frey et al. (2005a) | RCT - independent | Inner-city adolescents with chronically poorly controlled type 1 diabetes |
| 23 | Naar-King et al. (2009) | RCT - independent | African-American adolescents with primary obesity |

| MST-Psychiatric Studies | | | |
|-------------------------|----------------------------------|------------------|---|
| Study # | Authors | Design | Population |
| 7 | Henggeler, Rowland et al. (1999) | RCT | Youth presenting psychiatric emergencies |
| 15 | Rowland et al. (2005) | RCT | Youth with serious emotional and behavioral disturbances |
| 19 | Stambaugh et al. (2007) | QE - independent | Youth with serious emotional disturbance & antisocial behavior at risk of out-of-home placement |

| Large-Scale Transportability Dissemination Studies | | | |
|--|--|--------|--------------------------------|
| Study # | Authors | Design | Population |
| 10 | Henggeler, Schoenwald, Liao, Letourneau & Edwards (2002) | LSTS | Youth referred to standard MST |
| 11 | Schoenwald, Sheidow, Letourneau & Liao (2003) | LSTS | Youth referred to standard MST |

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|--|---|--------|---|--|----------------|--|--|
| 1 MST | Henggeler et al. (1986) | QE | Delinquents N = 80 | Diversion services | Post treatment | Improved family relations; decreased behavior problems; decreased association with deviant peers | Graduate students/ University |
| | Henggeler, S. W., Rodick, J. D., Borduin, C. M., Hanson, C. L., Watson, S. M., & Urey, J. R. (1986). Multisystemic treatment of juvenile offenders: Effects on adolescent behavior and family interactions. <i>Developmental Psychology</i> , 22, 132-141. FSRC Publication^(b) #104 | | | | | | |
| 2 MST-Child Abuse and Neglect* | Brunk, Henggeler & Whelan (1987) | RCT | Maltreating families N = 33 | Behavioral parent training | Post treatment | Improved parent-child interactions | Graduate students/ University |
| | Brunk, M., Henggeler, S. W., & Whelan, J. P. (1987). A comparison of multisystemic therapy and parent training in the brief treatment of child abuse and neglect. <i>Journal of Consulting and Clinical Psychology</i> , 55, 311-318. FSRC Publication^(b) #103 | | | | | | |
| 3 MST-Problem Sexual Behavior* | Borduin, Henggeler, Blaske & Stein (1990) | RCT | Adolescent sexual offenders N = 16 | Individual counseling | 3 years | Reduced sexual offending (93%); reduced other criminal offending (72%) | Graduate students/ University |
| | Borduin, C. M., Henggeler, S. W., Blaske, D. M. & Stein, R. (1990). Multisystemic treatment of adolescent sexual offenders. <i>International Journal of Offender Therapy and Comparative Criminology</i> , 35, 105-114. FSRC Publication^(b) #102 | | | | | | |
| 4 MST | Henggeler, Melton & Smith (1992) | RCT | Violent and chronic juvenile offenders N = 84 | Usual community services – high rates in incarceration | 59 weeks | Improved family relations; improved peer relations; decreased recidivism (43%); decreased out-of-home placement (64%) | Community therapists/ Community provider |
| | Henggeler et al. (1993) | | Same sample | | 2.4 years | Decreased recidivism (24%) (doubled survival rate) | |
| Henggeler, S. W., Melton, G. B., & Smith, L. A. (1992). Family preservation using multisystemic therapy: An effective alternative to incarcerating serious juvenile offenders. <i>Journal of Consulting and Clinical Psychology</i> , 60, 953-961. FSRC Publication^(b) #4 | | | | | | | |
| Henggeler, S. W., Melton, G. B., Smith, L. A., Schoenwald, S. K., & Hanley, J. H. (1993). Family preservation using multisystemic treatment: Long-term follow-up to a clinical trial with serious juvenile offenders. <i>Journal of Child and Family Studies</i> , 2, 283-293. FSRC Publication^(b) #13 | | | | | | | |
| 5 MST | Borduin et al. (1995) | RCT | Violent and chronic juvenile offenders N = 176 | Individual counseling | 4 years | Improved family relations; decreased psychiatric symptomatology for parents; decreased youth behavior problems; decreased recidivism (63%) | Graduate students/ University |
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Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|--|----------------------------|--------|----------------|------------|------------|---|-----------------------------------|
| 5 MST (CONTINUED FROM PAGE 4) | Schaeffer & Borduin (2005) | | Same sample | | 13.7 years | Decreased rearrests (54%); decreased days incarcerated (57%) | |
| | Klietz et al. (2010) | | Same sample | | 13.7 years | Cost benefits ranging from \$75,110 to \$199,374 per MST participant | |
| | Sawyer & Borduin (2011) | | Same sample | | 21.9 years | Decreased felony arrests (36%); decreased violent felony arrests (75%); decreased days in adult confinement (33%) | |

Borduin, C. M., Mann, B. J., Cone, L. T., Henggeler, S. W., Fucci, B. R., Blaske, D. M., & Williams, R. A. (1995). Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology*, 63, 569-578. **FSRC Publication^(b) #25**

Schaeffer, C. M., & Borduin, C. M. (2005). Long-term follow-up to a randomized clinical trial of multisystemic therapy with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology*, 73(3), 445-453. **FSRC Publication^(b) #261**

Klietz, S. J., Borduin, C. M., & Schaeffer, C. M. (2010). Cost-benefit analysis of multisystemic therapy with serious and violent juvenile offenders. *Journal of Family Psychology*, 24, 657-666. **FSRC Publication^(b) #383**

Sawyer, A.M., & Borduin, C.M. (2011). Effects of MST through midlife: A 21.9-year follow up to a randomized clinical trial with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology*, 79, 643-652. **FSRC Publication^(b) #396**

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|-----------------|---------------------------------|-----|---|---|-----------|--|---|
| 6 MST | Henggeler, Melton et al. (1997) | RCT | Violent and chronic juvenile offenders N = 155 | Juvenile probation services – high rates of incarceration | 1.7 years | Decreased psychiatric symptomatology; decreased incarceration (53%); decreased recidivism (26%, nonsignificant); treatment adherence linked with recidivism outcomes | Community therapists/ Community providers - two sites |
|-----------------|---------------------------------|-----|---|---|-----------|--|---|

Henggeler, S. W., Melton, G. B., Brondino, M. J., Scherer, D. G., & Hanley, J. H. (1997). Multisystemic therapy with violent and chronic juvenile offenders and their families: The role of treatment fidelity in successful dissemination. *Journal of Consulting and Clinical Psychology*, 65, 821-833. **FSRC Publication^(b) #55**

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|-----------------------------------|----------------------------------|-----|---|-----------------------------|---------------------------|---|----------------------------------|
| 7 MST – Psychiatric* | Henggeler, Rowland et al. (1999) | RCT | Youth presenting psychiatric emergencies N = 116 | Psychiatric hospitalization | 4 months post recruitment | Decreased externalizing problems (CBCL); improved family relations; increased school attendance; higher consumer satisfaction | Community therapists/ University |
| | Schoenwald et al. (2000) | | Same sample | | 4 months post recruitment | 73% reduction in days hospitalized; 49% reduction in days in other out-of-home placements | |

STUDY CONTINUES 

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---|----------------------------------|--------|----------------|------------|----------------------------|--|-----------------------------------|
| 7 MST – Psychiatric* (CONTINUED FROM PAGE 5) | Henggeler, Rowland et al. (2003) | | Same sample | | 16 months post recruitment | Favorable 4-month outcomes, noted above, dissipated; 15% decrease in days in out-of-home placement (non-significant) | |
| | Huey et al. (2004) | | Same sample | | 16 months post recruitment | Decreased rates of attempted suicide | |
| | Sheidow et al. (2004) | | Same sample | | 16 months post recruitment | MST cost benefits at 4 months, but equivalent costs at 16 months | |

Henggeler, S. W., Rowland, M. R., Randall, J., Ward, D., Pickrel, S. G., Cunningham, P. B., Miller, S. L., Edwards, J. E., Zealberg, J., Hand, L., & Santos, A. B. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youth in psychiatric crisis: Clinical outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38, 1331-1339. **FSRC Publication^(b) #88**

Schoenwald, S. K., Ward, D. M., Henggeler, S. W., & Rowland, M. D. (2000). MST vs. hospitalization for crisis stabilization of youth: Placement outcomes 4 months post-referral. *Mental Health Services Research*, 2, 3-12. **FSRC Publication^(b) #64**

Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C., Sheidow, A. J., Ward, D. M., Randall, J., Pickrel, S. G., Cunningham, P. B., & Edwards, J. (2003). One-year follow-up of multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 42, 543-551. **FSRC Publication^(b) #231**

Huey, S. J. Jr., Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C. A., Cunningham, P. B., Pickrel, S. G., & Edwards, J. (2004). Multisystemic therapy effects on attempted suicide by youth presenting psychiatric emergencies. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43, 183-190. **FSRC Publication^(b) #247**

Sheidow, A. J., Bradford, W. D., Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C., Schoenwald, S. K., & Ward, D. M. (2004). Treatment costs for youths in psychiatric crisis: Multisystemic therapy versus hospitalization. *Psychiatric Services*, 55, 548-554. **FSRC Publication^(b) #253**

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|---|--|-----|---|--------------------------|----------------------------|--|----------------------------------|
| 8 MST- Substance Abuse* | Henggeler, Pickrel & Brondino (1999) | RCT | Substance-abusing and -dependent delinquents N = 118 | Usual community services | 11 months post recruitment | Decreased drug use at post treatment; decreased days in out-of-home placement (50%); decreased criminal arrests (19%, nonsignificant); treatment adherence linked with decreased drug use and other outcomes | Community therapists/ University |
| | Henggeler, Pickrel, Brondino & Crouch (1996) | | Same sample | | 11 months post recruitment | 98% rate of treatment completion for youth in MST | |
| | Schoenwald et al. (1996) | | Same sample | | 11 months post recruitment | Incremental cost of MST nearly offset by between-groups differences in out-of-home placement | |

STUDY CONTINUES 

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---|--------------------------------------|--------|----------------|------------|-----------|---|-----------------------------------|
| 8 MST-Substance Abuse* (CONTINUED FROM PAGE 6) | Brown et al. (1999) | | Same sample | | 6 months | Increased attendance in regular school settings | |
| | Henggeler, Clingempeel et al. (2002) | | Same sample | | 4 years | Decreased violent crime (74%); increased marijuana abstinence | |

Henggeler, S. W., Pickrel, S. G., & Brondino, M. J. (1999). Multisystemic treatment of substance abusing and dependent delinquents: Outcomes, treatment fidelity, and transportability. *Mental Health Services Research*, 1, 171-184. **FSRC Publication^(b) #85**

Henggeler, S. W., Pickrel, S. G., Brondino, M. J., & Crouch, J. L. (1996). Eliminating (almost) treatment dropout of substance abusing or dependent delinquents through home-based multisystemic therapy. *American Journal of Psychiatry*, 153, 427-428. **FSRC Publication^(b) #40**

Schoenwald, S. K., Ward, D. M., Henggeler, S. W., Pickrel, S. G., & Patel, H. (1996). MST treatment of substance abusing or dependent adolescent offenders: Costs of reducing incarceration, inpatient, and residential placement. *Journal of Child and Family Studies*, 5, 431-444. **FSRC Publication^(b) #54**

Brown, T. L., Henggeler, S. W., Schoenwald, S. K., Brondino, M. J., & Pickrel, S. G. (1999). Multisystemic treatment of substance abusing and dependent juvenile delinquents: Effects on school attendance at posttreatment and 6-month follow-up. *Children's Services: Social Policy, Research, and Practice*, 2, 81-93. **FSRC Publication^(b) #71**

Henggeler, S. W., Clingempeel, W. G., Brondino, M. J., & Pickrel, S. G. (2002). Four-year follow-up of multisystemic therapy with substance abusing and dependent juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41, 868-874. **FSRC Publication^(b) #223**

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|---|-------------------------------------|-----|-------------------------------------|--------------------------|---------|---|-------------------------------|
| 9 MST-Problem Sexual Behavior | Borduin, Schaeffer & Heiblum (2009) | RCT | Juvenile sexual offenders N = 48 | Usual community services | 9 years | Decreased behavior problems and symptoms; improved family relations, peer relations and academic performance; decreased caregiver distress; decreased sex offender recidivism (83%); decreased recidivism for other crimes (50%); decreased days incarcerated (80%) | Graduate students/ University |
|---|-------------------------------------|-----|-------------------------------------|--------------------------|---------|---|-------------------------------|

Borduin, C. M., Schaeffer, C. M., & Heiblum, N. (2009). A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: Effects on youth social ecology and criminal activity. *Journal of Consulting and Clinical Psychology*, 77, 26-37. **FSRC Publication^(b) #335**

Any of the research publications listed in this document can be requested online from the Family Services Research Center (FSRC) at the Medical University of South Carolina. To order a publication, simply complete the FSRC publication request form at <http://academicdepartments.musc.edu/psychiatry/research/fsrc/subsites/form.htm> by providing your name, email address and the FSRC publication number, which is listed after each citation in this document. The requested publication will be emailed directly to you.

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

Study #
& Name

10
MST

| Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---|--------|---|---------------------|--------------|--|--|
| Henggeler, Schoenwald, Liao, Letourneau & Edwards (2002) Initial transportability study | LSTS | Youth referred to standard MST N = 285 | No comparison group | No follow-up | Supervisor behavior linked with therapist behavior | Community therapists/ Community providers - nine sites |
| Schoenwald, Halliday-Boykins & Henggeler (2003) | | Same sample | | No follow-up | Therapist adherence associated with certain family characteristics | |

Henggeler, S. W., Schoenwald, S. K., Liao, J. G., Letourneau, E. J., & Edwards, D. L. (2002). Transporting efficacious treatments to field settings: The link between supervisory practices and therapist fidelity in MST programs. *Journal of Clinical Child and Adolescent Psychology*, 31, 155-167. **FSRC Publication^(b) #215**

Schoenwald, S. K., Halliday-Boykins, C. A., & Henggeler, S. W. (2003). Client-level predictors of adherence to MST in community service settings. *Family Process*, 42, 345-359. **FSRC Publication^(b) #244**

11
MST

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|--|------|--------------------------|---------------------|-------------------------|--|--|
| Schoenwald, Sheidow, Letourneau & Liao (2003) | LSTS | Sub sample N = 666 | No comparison group | Post treatment | Decreased externalizing and internalizing symptoms, and improved functioning; therapist adherence predicted youth outcomes | Community therapists/ Community providers - 39 sites |
| Schoenwald, Sheidow & Letourneau (2004) | | Same sample | | Post treatment | Consultant adherence predicted therapist adherence and youth outcomes | |
| Halliday-Boykins, Schoenwald & Letourneau (2005) | | Final sample N = 1979 | | 6 months post treatment | Therapist-caregiver ethnic similarity predicted treatment length, discharge, and behavior problem reduction | |
| Schoenwald, Carter, Chapman & Sheidow (2008) | | Same sample | | 1 year post treatment | Therapist adherence predicted youth behavior problem reduction | |
| Schoenwald, Sheidow & Chapman (2009) | | Same sample | | 1 year post treatment | Two supervisor adherence scales predicted youth outcomes and one predicted therapist adherence | |

STUDY CONTINUES 

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---|--|--------|----------------|------------|------------------------|---|-----------------------------------|
| 11 MST (CONTINUED FROM PAGE 8) | Schoenwald, Chapman, Sheidow & Carter (2009) | | Same sample | | 4 years post treatment | Therapist adherence predicted lower rates of criminal charges | |

Schoenwald, S. K., Sheidow, A.J., Letourneau, E.J., & Liao, J. G. (2003). Transportability of Multisystemic Therapy: Evidence for multi-level influences. *Mental Health Services Research*, 5, 223-239. **FSRC Publication^(b) #235**

Schoenwald, S. K., Sheidow, A. J., & Letourneau, E. J. (2004). Toward effective quality assurance in evidence-based practice: Links between expert consultation, therapist fidelity, and child outcomes. *Journal of Child and Adolescent Clinical Psychology*, 33, 94-104. **FSRC Publication^(b) #242**

Halliday-Boykins, C.A., Schoenwald, S.K., & Letourneau, E.J. (2005). Caregiver-therapist ethnic similarity predicts youth outcomes from an empirically based treatment. *Journal of Consulting and Clinical Psychology*, 73, 808-818. **FSRC Publication^(b) #256**

Schoenwald, S. K., Carter, R. E., Chapman, J. E., & Sheidow, A. J. (2008). Therapist adherence and organizational effects on change in youth behavior problems one year after Multisystemic Therapy. *Administration and Policy in Mental Health and Mental Health Services Research*, 35, 379-394. **FSRC Publication^(b) #326**

Schoenwald, S. K., Sheidow, A. J., & Chapman, J. E. (2009). Clinical supervision in treatment transport: Effects on adherence and outcomes. *Journal of Consulting and Clinical Psychology*, 77, 410-421. **FSRC Publication^(b) #344**

Schoenwald, S.K., Chapman, J.E., Sheidow, A.J., & Carter, R.E. (2009). Long-term youth criminal outcomes in MST transport: The impact of therapist adherence and organizational climate and structure. *Journal of Clinical Child and Adolescent Psychology*, 38, 91-105. **FSRC Publication^(b) #337**

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|------------------|---------------------------------|-----------------|---|------------------------------|----------------------------|---|--|
| 12 MST | Ogden & Halliday-Boykins (2004) | RCT-independent | Norwegian youth with serious antisocial behavior N = 100 | Usual child welfare services | 6 months post recruitment | Decreased externalizing and internalizing symptoms; decreased out-of-home placements (78%); increased social competence; increased consumer satisfaction; differential site effects | Community therapists/ Community providers - four sites |
| | Ogden & Hagen (2006) | | Sample from three sites with fidelity | | 24 months post recruitment | Decreased internalizing symptoms; decreased out-of-home placements (56%) | |

Ogden, T., & Halliday-Boykins, C. A. (2004). Multisystemic treatment of antisocial adolescents in Norway: Replication of clinical outcomes outside of the US. *Child & Adolescent Mental Health*, 9(2), 77-83. **FSRC Publication^(b) #248**

Ogden, T., & Hagen, K. A. (2006). Multisystemic therapy of serious behaviour problems in youth: Sustainability of therapy effectiveness two years after intake. *Journal of Child and Adolescent Mental Health*, 11, 142-149. **FSRC Publication^(b) #264**

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|------------------------------|---------------------|-----------------|--|------------------------|---------------------------|---|----------------------------------|
| 13 MST-Health Care | Ellis et al. (2004) | RCT-independent | Adolescents with poorly controlled type 1 diabetes N = 31 | Standard diabetes care | 6 months post recruitment | Improved diabetes adherence; improved metabolic control; decreased hospital admissions (100%) | Community therapists/ University |
|------------------------------|---------------------|-----------------|--|------------------------|---------------------------|---|----------------------------------|

Ellis, D. A., Naar-King, S., Frey, M. A., Templin, T., Rowland, M., & Greger, N. (2004). Use of Multisystemic Therapy to improve regimen adherence among adolescents with type 1 diabetes in poor metabolic control: A pilot study. *Journal of Clinical Psychology in Medical Settings*, 11, 315-324. **FSRC Publication^(b) #357**

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

Study #
& Name

14
MST-Health
Care

| Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|--------------------------------|-----------------|--|------------------------|----------------------------|---|-----------------------------------|
| Ellis, Frey et al. (2005a) | RCT-independent | Inner city adolescents with chronically poorly controlled type 1 diabetes N = 127 | Standard diabetes care | 7 months post recruitment | Increased blood glucose testing; decreased inpatient admissions; improved metabolic control | Community therapists/ University |
| Ellis, Naar-King et al. (2005) | | Subset of sample N = 31 | | 9 months post recruitment | Decreased medical charges and direct care costs | |
| Ellis, Frey et al. (2005b) | | Same sample | | 7 months post recruitment | Decreased diabetes stress | |
| Ellis, Templin et al. (2007) | | Same sample | | 12 months post recruitment | Decreased inpatient admissions sustained (43%); favorable metabolic control outcomes dissipated | |
| Naar-King et al. (2007) | | Same sample | | 12 months post recruitment | Parents improved awareness of adolescent adherence | |
| Ellis, Naar-King et al. (2007) | | Subsample of youth in MST condition N = 40 | | 7 months post recruitment | Treatment fidelity to MST predicted adherence to diabetes care regimen | |
| Ellis, Naar-King et al. (2008) | | Same sample | | 24 months post recruitment | Decreased hospitalizations (47%) | |

Ellis, D. A., Frey, M. A., Naar-King, S., Templin, T., Cunningham, P. B., & Cakan, N. (2005a). Use of multisystemic therapy to improve regimen adherence among adolescents with type 1 diabetes in chronic poor metabolic control: A randomized controlled trial. *Diabetes Care*, 28, 1604-1610. **FSRC Publication^(b) #268**

Ellis, D. A., Naar-King, S., Frey, M. A., Templin, T., Rowland, M., & Cakan, N. (2005). Multisystemic treatment of poorly controlled type 1 diabetes: Effects on medical resource utilization. *Journal of Pediatric Psychology*, 30, 656-666. **FSRC Publication^(b) #278**

Ellis, D. A., Frey, M. A., Naar-King, S., Templin, T., Cunningham, P. B., & Cakan, N. (2005b). The effects of multisystemic therapy on diabetes stress in adolescents with chronically poorly controlled type 1 diabetes: Findings from a randomized controlled trial. *Pediatrics*, 116, e826-e832. **FSRC Publication^(b) #267**

Ellis, D. A., Templin, T., Naar-King, S., Frey, M. A., Cunningham, P. B., Podolski, C., & Cakan, N. (2007). Multisystemic therapy for adolescents with poorly controlled type I diabetes: Stability of treatment effects in a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 75, 168-174. **FSRC Publication^(b) #297**

Naar-King, S., Ellis, D. A., Idalski, A., Frey, M. A., & Cunningham, P. B. (2007). Multisystemic therapy decreases parental overestimation of adolescent responsibility for type 1 diabetes management in urban youth. *Families, Systems, & Health*, 25, 178-189. **FSRC Publication^(b) #343**

Ellis, D. A., Naar-King, S., Templin, T., Frey, M. A., & Cunningham, P. B. (2007). Improving health outcomes among youth with poorly controlled type 1 diabetes: The role of treatment fidelity in a randomized clinical trial of multisystemic therapy. *Journal of Family Psychology*, 21, 363-371. **FSRC Publication^(b) #304**

Ellis, D. A., Naar-King, S., Templin, T., Frey, M. A., Cunningham, P., Sheidow, A., Cakan, N., & Idalski, A. (2008). Multisystemic therapy for adolescents with poorly controlled type 1 diabetes: Reduced diabetic ketoacidosis admissions and related costs over 24 months. *Diabetes Care*, 31, 1746-1747. **FSRC Publication^(b) #380**

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---------------------------|-----------------------|--------|--|--------------------------------------|---------------------------|---|---|
| 15 MST- Psychiatric | Rowland et al. (2005) | RCT | Youth with serious emotional and behavioral disturbances N = 31 | Hawaii's intensive Continuum of Care | 6 months post recruitment | Decreased symptoms; decreased arrests (34%, nonsignificant); increased days in regular school (42%, marginally significant); increased social support (marginally significant); decreased days in out-of-home placement (68%) | Community therapists/ Community provider |

Rowland, M. R., Halliday-Boykins, C. A., Henggeler, S. W., Cunningham, P. B., Lee, T. G., Kruesi, M. J. P., & Shapiro, S. B. (2005). A randomized trial of multisystemic therapy with Hawaii's Felix Class youths. *Journal of Emotional and Behavioral Disorders*, 13, 13-23. **FSRC Publication^(b) #262**

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| 16 MST | Timmons-Mitchell et al. (2006) | RCT-independent | Juvenile offenders (felons) at imminent risk of placement N = 93 | Usual community services | 18-months post-treatment | Improved youth functioning; decreased substance use problems; improved school functioning; decreased re-arrests (37%) | Community therapists/ Community provider |
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Timmons-Mitchell, J., Bender, M. B., Kishna, M. A., & Mitchell, C. C. (2006). An independent effectiveness trial of multisystemic therapy with juvenile justice youth. *Journal of Clinical Child and Adolescent Psychology*, 35, 227-236. **FSRC Publication^(b) #291**

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| 17 MST- Substance Abuse | Henggeler et al. (2006) | RCT | Substance-abusing and -dependent juvenile offenders in Drug Court N = 161 | Four treatment conditions, including Family Court with usual services and Drug Court with usual services | 12 months post recruitment | MST enhanced substance use outcomes for alcohol and marijuana; Drug Court was more effective than Family Court at decreasing self-reported substance use and criminal activity | Community therapists/ University |
| | Rowland et al. (2008) | | Nearest-age siblings N = 70 | | 18 months post recruitment | Evidence-based treatment decreased siblings' substance abuse | |

Henggeler, S. W., Halliday-Boykins, C. A., Cunningham, P. B., Randall, J., Shapiro, S. B., & Chapman, J. E. (2006). Juvenile drug court: Enhancing outcomes by integrating evidence-based treatments. *Journal of Consulting and Clinical Psychology*, 74, 42-54. **FSRC Publication^(b) #270**

Rowland, M. R., Chapman, J. E., & Henggeler, S. W. (2008). Sibling outcomes from a randomized trial of evidence-based treatments with substance abusing juvenile offenders. *Journal of Child & Adolescent Substance Abuse*, 17, 11-26. **FSRC Publication^(b) #320**

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| 18 MST | Ogden, Hagen & Andersen (2007) | BM-independent | Norwegian youth with serious anti-social behavior N = 55 | Study 12 | Post treatment | Outcomes as favorable or better than Study 12 | Community therapists/ Community provider |
|-----------|--------------------------------|----------------|---|----------|----------------|---|---|

Ogden, T., Hagen, K. A., & Andersen, O. (2007). Sustainability of the effectiveness of a programme of multisystemic treatment (MST) across participant groups in the second year of operation. *Journal of Children's Services*, 2, 4-14. **FSRC Publication^(b) #312**

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects(*) & Findings | Therapists/ Provider Organization |
|---------------------------|-------------------------|----------------|---|------------|--------------------|--|---|
| 19 MST- Psychiatric | Stambaugh et al. (2007) | QE-independent | Youth with serious emotional disturbance and antisocial behavior at risk for out-of-home placement N = 267 | Wraparound | 18-month follow-up | Decreased symptoms, improved functioning; decreased out-of-home placements (54%) | Community therapists/ Community provider |

Stambaugh, L. F., Mustillo, S. A., Burns, B. J., Stephens, R. L., Baxter, B., Edwards, D., & DeKraai, M. (2007). Outcomes from wraparound and multisystemic therapy in a center for mental health services system-of-care demonstration site. *Journal of Emotional and Behavioral Disorders*, 15, 143-155. **FSRC Publication^(b) #303**

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| 20 MST | Sundell et al. (2008) | RCT-independent | Swedish youth with conduct disorder N = 156 | Usual child welfare services in Sweden | 7 months post recruitment | No outcomes favoring either treatment condition; low treatment fidelity; treatment fidelity associated with arrest | Community therapists/ Community providers - four sites |
|-----------|-----------------------|-----------------|--|--|---------------------------|--|---|

Sundell, K., Hansson, K., Lofholm, C. A., Olsson, T., Gustle, L. H., & Kadesjo, C. (2008). The transportability of MST to Sweden: Short-term results from a randomized trial of conduct disordered youth. *Journal of Family Psychology*, 22, 550-560. **FSRC Publication^(b) #330**

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| 21 MST | Curtis, Ronan, Heiblum & Crellin (2009) | BM-independent | Juvenile offenders in New Zealand N = 65 | Other MST trials | 12 months | Higher rate of treatment completion; effect sizes equivalent to other MST trials | Community therapists/ Community provider |
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Curtis, N. M., Ronan, K. R., Heiblum, N., & Crellin, K. (2009). Dissemination and effectiveness of multisystemic treatment in New Zealand: A benchmarking study. *Journal of Family Psychology*, 23, 119-129. **FSRC Publication^(b) #341**

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| 22 MST- Problem Sexual Behavior | Letourneau et al. (2009) | RCT | Juvenile sexual offenders N = 127 | Usual sex offender-specific treatment | 12 months post recruitment | Decreased sexual behavior problems; decreased delinquency, substance use and externalizing symptoms; reduced out-of-home placements (59%) | Community therapists/ Community provider |
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Letourneau, E. J., Henggeler, S. W., Borduin, C. M., Schewe, P. A., McCart, M. R., Chapman, J. E., & Saldana, L. (2009). Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial. *Journal of Family Psychology*, 23, 89-102. **FSRC Publication^(b) #336**

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| 23 MST-Health Care | Naar-King et al. (2009) | RCT-independent | African-American adolescents with primary obesity N = 48 | Family group weight-management program | 7 months post recruitment | Decreased percent overweight, body fat and body mass index | Community therapists/ University |
| | Carcone, MacDonell et al. (2011) | Qualitative | Same sample: Adolescents in the MST condition | | 7 months post recruitment | Instilling hope associated with treatment engagement | |

Naar-King, S., Ellis, D., Kolmodin, K., Cunningham, P., Jen, K. L. C., Saelens, B., & Brogan, K. (2009). A randomized pilot study of multisystemic therapy targeting obesity in African-American adolescents. *Journal of Adolescent Health*, 45, 417-419. **FSRC Publication^(b) #352**

Carcone, A. I., MacDonell, K. E., Naar-King, S., Ellis, D. E., Cunningham, P. B., Kaljee, L. (2011). Treatment engagement in a weight-loss intervention for African American adolescents and their families. *Children's Health Care*, 40, 1-21. **FSRC Publication^(b) #395**

Published MST Outcome, Transportability and Benchmarking Studies

Updated January 2012

| Study # & Name | Publication | Design | Population (N) | Comparison | Follow-up | Treatment Effects ^(a) & Findings | Therapists/ Provider Organization |
|--|-----------------------|--------|---|---|----------------------------|---|---|
| 24 MST-Child Abuse and Neglect | Swenson et al. (2010) | RCT | Physically abused adolescents N = 86 | Group-based parent training and enhanced outpatient treatment | 16 months post recruitment | Decreased symptoms for youth and caregiver; improved parenting behaviors, increased social support; decreased out-of-home placements (63% fewer days) | Community therapists/ Community provider |

Swenson, C. C., Schaeffer, C., Henggeler, S. W., Faldowski, R., & Mayhew, A. M. (2010). Multisystemic therapy for child abuse and neglect: A randomized effectiveness trial. *Journal of Family Psychology*, 24, 497-507. **FSRC Publication^(b) #382**

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| 25 MST | Glisson et al. (2010) | CRO | Juvenile offenders N = 615 | Usual services | 18 months post recruitment | Reduced out-of-home placements (53%); reduced symptoms (internalizing and externalizing combined) in sites with organizational intervention, but dissipated at 18-month follow-up | Community therapists/ Community provider |
|------------------|-----------------------|-----|-------------------------------|----------------|----------------------------|---|---|

Glisson, C., Schoenwald, S. K., Hemmelgarn, A., Green, P., Dukes, D., Armstrong, K. S., & Chapman, J. E. (2010). Randomized trial of MST and ARC in a two-level EBT implementation strategy. *Journal of Consulting and Clinical Psychology*, 78, 537-550. **FSRC Publication^(b) #381**

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| 26 MST | Butler et al. (2011) | RCT-independent | British juvenile offenders N = 108 | Tailored range of extensive and multicomponent evidence-based interventions | 18 months post treatment | Reduced offenses (41%) and placements (41% during last 6 months); reduced self-reported and parent-reported delinquency; reduced psychopathic symptoms; improved parenting | Community therapists/ Community provider |
|------------------|----------------------|-----------------|---------------------------------------|---|--------------------------|--|---|

Butler, S., Baruch, G., Hickley, N., & Fonagy, P. (2011). A randomized controlled trial of MST a statutory therapeutic intervention for young offenders. *Journal of the American Academy of Child & Adolescent Psychiatry*, (50)12, 1220-1235. **FSRC Publication^(b) #398**

FOOTNOTES:

^(a) All treatment effects pertain to MST unless otherwise noted.

^(b) Publications may be requested online by referencing this number on the FSRC Publication Request form at <http://academicdepartments.musc.edu/psychiatry/research/fsrc/subsites/form.htm>

*Early explorations with adaptations of standard MST for the population prior to formalizing the model adaptation in the form in which it exists today

GLOSSARY:

QE = Quasi-experimental

BM = Benchmarking

CRO = Counties randomized to organizational intervention conditions, youth in counties to MST or usual care

LSTS = Large-scale transportability study

RCT = Randomized clinical trial

For more information about MST and training in MST, visit www.msts-services.com or call MST Services at (843) 856-8226. For more information about MST research projects or research publications, visit www.musc.edu/fsrc, or call the Family Services Research Center (FSRC) at the Medical University of South Carolina at 843-876-1800.