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INNOVATIONS IN CHILD PROTECTION PRACTICE

A Multisystemic Approach to the Prevention and Treatment of Child Abuse and Neglect

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Abstract

Families experiencing physical abuse and/or neglect are at risk of continued difficulties that may involve long-term monitoring by Child Protective Services (CPS) and perhaps even removal of the child. Interventions needed to help the family remain intact safely and reduce both the clinical challenges they are experiencing and risk of further maltreatment will need to meet the multiple needs of all family members and involve a positive, collaborative working relationship with CPS. If services that are typically provided at outpatient clinics are used, the CPS case worker may be tasked with linking the family to many providers. When the family cannot make all the appointments, they are at further risk of removal of their child. In this article we present Multisystemic Therapy for Child Abuse and Neglect (MST-CAN), an ecologically based treatment for families experiencing physical abuse and/or neglect in which research-supported mental health services are delivered in the home by one clinical team to families who have serious clinical needs. To date, MST-CAN has been implemented with families experiencing the most serious levels of risk, but application is feasible for families with lower risk levels. Among high-risk families, MST-CAN has been shown effective for reducing out-of-home placement, abusive or neglectful parent behavior, and parent and child mental health difficulties and for increasing natural social supports. Two specialty population programs based on MST-CAN are also presented. These are MST – Building Stronger Families, a specialty program for parents who are experiencing abuse or neglect co-occurring with substance abuse, and MST for Intimate Partner Violence for families experiencing abuse or neglect and intimate partner violence. All models are based on the core Standard MST model. We trace the history of model development to dissemination.

Keywords Child maltreatment · Multisystemic therapy · Trauma · MST-CAN

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Physical abuse and neglect carry an emotional and physical health impact that may follow children throughout their lifespan (Cyr et al. 2010; Felitti and Anda 2010; Springer et al. 2007). In some cases, adults who were maltreated as children bring abusive parenting styles to their own children (Berlin et al. 2011; Stith et al. 2009). The emotional fallout that children cope with may be attenuated through treatment, but such treatment needs to be targeted to address the risk factors that compromise safety and positive mental health (Swenson et al. 2010). In a meta-analysis of randomized controlled trials on prevention and reduction of maltreatment, Euser et al. (2015) identified five treatments that effectively prevented or reduced maltreatment. Multisystemic Therapy for Child Abuse and Neglect (MST-CAN) was the ecologically and family based treatment cited in that group. More recently an international meta-analytic study (van der Put et al. 2018) also supported the effectiveness of MST-CAN for preventing and reducing child abuse and neglect.

MST-CAN is a research-supported, restorative, ecological treatment model applied to families under the guidance of Child Protective Services because of recently substantiated physical abuse and/or neglect of a child. MST-CAN is an adaptation of Standard Multisystemic Therapy (Standard MST) and addresses the many risk factors families are experiencing that may lead to reabuse and out-of-home placement. To give the reader an in-depth understanding of the development and current status of MST-CAN and what is involved in the model, we will trace its roots from the origins of Standard MST to current MST-CAN practice and to prospective additional derivatives from MST-CAN.

The Roots of MST-CAN

Multisystemic Therapy (Standard MST; Henggeler et al. 2009; Johnides et al. 2017) is a treatment model that was developed more than 35 years ago and has been disseminated in many countries to meet the needs of delinquent youths and their families. The overarching strategy is to prevent youths from being incarcerated or placed out of the home by helping their families to become the solution. Standard MST has proven effective in meeting target goals for this population such as reducing criminal activity and out-of-home placement up to 21.9 years post-referral (Johnides et al. 2017; Sawyer and Borduin 2011; Schaeffer and Borduin 2005) and has shown significant cost benefit (Dopp et al. 2017). As such, several researchers with interests in other populations that also have serious and complex clinical needs have adapted the Standard MST model for use in treatment of such youths with problem sexual behavior (Borduin et al. 1990; Borduin et al. 2009), youths with psychiatric difficulties (Rowland et al. 2005), and youths exposed to community violence (Swenson et al. 2009a).

Most relevant to this journal is the work that has been done over the past 20 years to apply Standard MST to families experiencing child abuse and neglect (Swenson et al. 2010; Schaeffer et al. 2013). Significant efforts have been made not only to develop, evaluate, and disseminate an effective clinical approach but also to improve practice in Child Protective Services (CPS). Especially of concern are families that have come under the guidance of CPS multiple times or across multiple years and continue to experience safety risks. Here we propose that lack of progress may not be the result of recalcitrance. Rather, the likelihood of change requires treatment that:

- supports the belief that families even in the most challenging situations have worth and value and can change,
- strives daily to engage families (many of whom do not trust treatment or CPS),
- targets the risk factors that all members of the family are actually experiencing,
- helps families address practical needs, and
- brings CPS together with the family and team to solve the problems the family is experiencing.

These characteristics of what is required for change describe some of the underlying considerations for MST-based programs for child abuse and neglect and are drawn largely from Standard MST.

Standard Multisystemic Therapy

At the time Standard MST was developed, existing treatment for delinquent youth was based on the capacity of youth to change their own behavior. Attempts at behavior change were made through individual therapy or group therapies and those treatments were not effective regardless of therapist experience, training, or talent. With treatment being largely ineffective, at a growing rate youth were incarcerated or placed out of the home (Henggeler and Borduin 1990). The reason for a family and ecologically-based treatment was based on research regarding the etiology of delinquent behavior. Studies on causes and correlates of youth antisocial behavior showed that delinquency and other child psychopathology was associated with child, family, peer, school, and neighborhood factors (Elliott 1994; Loeber et al. 1998; Thornberry and Krohn 2003). The lack of success in treatment appeared to be related to the failure to address risk factors in all systems. Henggeler and colleagues set out to change treatment that was delivered to these youth and their families to improve clinical outcomes and this model is what is now known as Standard MST.

The Standard MST model is an ecological model that is based on sound theory and defined by several characteristics: (a) nine principles; (b) an analytic model that guides intervention development; (c) a clinical structure that takes into account barriers families face to treatment participation; (d) delivery of interventions that have research support; and, (e) a quality assurance system that supports the clinical team in model fidelity (Henggeler et al. 2009). Regardless of the population (other than delinquent youth) in which MST is applied, each of these five characteristics are always followed. The main differences between Standard MST and models such as MST-CAN will be shown infra.

Multisystemic Therapy for Child Abuse and Neglect (MST-CAN)

The MST-CAN model is designed specifically for treatment of families who are experiencing severe clinical needs, multiple risk factors, and highly complex situations. Many families that are referred to MST-CAN have had long-term involvement with CPS. In some cases, children have already been placed out of the home. We will now discuss the history of MST-CAN development and provide the specifics of the MST-

CAN approach illustrating how the MST Standard characteristics are followed while explaining model adaptations. Finally, we present research findings.

The History of MST Applied to Child Maltreatment

The first application of MST to child maltreatment was in the mid-1980s. For her dissertation study, Brunk joined with colleagues (Molly Brunk et al. 1987) to conduct a small randomized efficacy trial with 43 families comparing Standard MST to group-based behavioral parent training. Participating families had indicated cases of either abuse or neglect. The children were ages 6 to 9. Families that received MST showed greater pre- and post-treatment changes across 8 weeks on alleviating family problems, restructuring parent-child relationships and improving effective parenting strategies. Parents who received parent training showed greater decreases in pre-post social problems compared to MST families. It has been hypothesized that this outcome may have been the result of the social support that one receives in a temporary group program. This study was important to establishing the feasibility of applying MST to child maltreatment and short-term outcomes. Lessons learned from the study were that some adaptations to Standard MST were needed because of the differences in risk factors being present for child abuse and neglect versus those for delinquency (e.g., parental substance abuse vs. association with youth showing deviant behavior). In addition, out-of-home placement rates, re-abuse incidents, and mental health functioning of children and adults needed to be evaluated.

Applications of MST to child maltreatment lay dormant until interest was sparked by Cynthia Cupit Swenson at the Medical University of South Carolina in the mid-1990s. At that time, the research on treatment of physical abuse was limited to parent training (Wolfe et al. 1981). Treatment for neglect was practically nonexistent, leading to a publication on the neglect of neglect (Wolock and Horowitz 1984). Though neglect was the most prevalent form of maltreatment, followed by physical abuse, the focus of the day, at least for mental health professionals in the child protection field, was on child sexual abuse. As a therapist and clinical supervisor herself, Swenson noted the lack of research guidance on physical abuse and neglect, a gap which left therapists few evidence-based treatment alternatives. In practice, families with complex needs were often referred to multiple providers so that families required transportation to at some times distant sites with services generally restricted to ordinary office hours. Unfortunately, services of this nature are still common today. Multiple provider appointments can create an iatrogenic process because families who cannot meet the treatment demands will not meet CPS goals. In addition, the involvement of multiple providers makes communication with CPS and monitoring of progress extraordinarily difficult. In this context, it was evident that a change was needed in the field. An important step was to document work that Swenson had been doing clinically and David Kolko had been doing in a study of treatment for physically abused children under a cognitive behavioral framework (Kolko and Swenson 2002). Informed by Standard MST, Brunk and colleagues study, years of prior clinical work, review of research on etiology and risk factors of abuse and neglect and common problems among families, MST-CAN began to take shape as a separate model. The major fit of an MST-based model with child abuse and neglect related to the multidetermined etiology of physical abuse and neglect.

Consistencies between MST-CAN and Standard MST

Multidetermined Risk

As noted supra, Standard MST is based on the understanding that causes and correlates of delinquent behavior are across multiple systems. Similarly, a wealth of scientific literature on the causes and correlates of maltreatment shows that physical abuse and neglect are not the product of one particular risk factor (such as low parenting skills) but relate to multiple risk factors across multiple systems including individual, parent, family, social network, and community (Sidebotham and Heron 2006; Slep and O'Leary 2007). There are many potential parent risk factors such as mental health difficulties and relationship conflict (Sidebotham and Heron 2006), intimate partner violence (Jouriles et al. 2008), parenting difficulties such as low involvement and less interaction with the child (Thomas and Zimmer-Gembeck 2011), harsh discipline practices (Koenig et al. 2000) and substance abuse, especially in cases of neglect (Dubowitz et al. 2011; Jonson-Reid et al. 2004). Families who experience maltreatment tend to have low social support and are fairly isolated (Coulton et al. 2007). Child characteristics that increase risk of physical abuse or neglect include aggression and noncompliance (Black et al. 2001) and risk increases as children experience special needs (Clement et al. 2016). Risk increases when community factors are present such as dangerous neighborhoods, and poverty (Black 2000; Mulder et al. 2018). As shown in the literature, a given family may experience multiple risk factors. The multidetermined nature of risk for child physical abuse and neglect across multiple systems implies the need for interventions that address risk in each of the systems. An ecological model may be the best fit for complex situations that involve serious clinical needs.

Theoretical Underpinnings: Theory of Social Ecology

Consistent with Standard MST, MST-CAN is based on Bronfenbrenner's (1979) theory of social ecology. As noted earlier, research on the causes and correlates show that physical abuse and neglect are influenced by factors within the individual, parent, family, social network, and community. These influences are bi-directional and some factors have more influence than others. Within the microsystem, the ecological environment is illustrated as a set of concentric circles that each represent a system. In the innermost circle is the individual *child.* Each concentric layer represents systems that influence the child. Child behavior and mental health functioning is influenced by interactions among these systems. Systems that are closer to the child are assumed to have more influence over the child's behavior. The second concentric layer is that of *family* in that family has daily influence over the child that extends into adulthood. If the parent-child interaction is abusive, the impact on the child is strong. Third is *extended family,* who can have a positive or negative impact on the family and child. The fourth layer is *peers*. Though not as influential as family, children spend increasing amounts of time with peers as they develop. *Neighborhood* is the fifth concentric circle. Youth spend time in their neighborhood when not in school so there is influence on them though that influence is spread among multiple people. Neighborhood also has an influence on parents who respond to community parenting norms. *School* is the sixth

concentric circle. School can strongly affect children in either positive or negative ways. The influence from school is less than that of family in that youth are not in school on weekends, holidays, or summer. The outermost circle is *greater community.* The city or region children live in influence them. However, the influence of family is strongest. Social ecological theory supports the notion of a family and ecologically-based treatment for physical abuse and neglect.

Nine Treatment Principles

In consideration of the multidetermined nature of risk factors for physical abuse and the influence of various systems on the child and parent, MST-CAN, like Standard MST, applies a set of nine principles that define the core model and guides strategies to assure that the treatment is applied to the social ecology. In summary, these nine principles (Henggeler et al. 2009) guide the clinical team:

1. Assess the fit between the identified problem that brought the family to treatment and their broader systemic context.
2. Keep a strengths-based focus and work with ecology members to be the ones who carry out change.
3. Use interventions that promote responsible behavior among family members.
4. Use interventions that focus on the present and that target well-defined problems that allow identification of changes.
5. Use interventions that assess and focus on sequences of behavior or conflict that maintain the problems for which the family was referred.
6. Apply interventions that are developmentally appropriate and fit the needs of the youth and family.
7. Work with the family to apply interventions that require daily or weekly efforts.
8. Evaluate intervention effectiveness continuously from multiple perspectives and when there are barriers to progress, the clinical team assumes responsibility for determining how to overcome those barriers.
9. Use interventions that empower caregivers to address family members' need on their own in order to maintain changes made during treatment.

Fidelity to these nine principls is important to clinical outcomes. In Standard MST and all adaptations, a therapist adherence measure taps adherence to the model which is defined as whether these nine principals are being followed. In randomized trials, scores on the therapist adherence measure have been shown to predict reductions in youth arrests, incarceration, substance abuse, and aggression, and improvements in family functioning (Henggeler et al. 1993, 1997, 1999; Huey et al. 2000; Schoenwald et al. 2000, 2003).

The MST Analytic Model Guides Intervention Development

In addition to the nine principles that provide a thread that guides *how* interventions are conducted, the MST analytic model guides *what* interventions are provided. The analytic model helps the team organize treatment and determine the sequence of interventions given that MST-CAN families typically have multiple treatment needs.

Importantly, MST-CAN is conducted in the context of family engagement. Families experiencing multiple clinical needs often have distrust of systems and therapists. The clinical team takes the responsibility for building the relationship with the family and ecology and gaining trust so that treatment can move forward. MST-CAN therapists are always strengths-focused about families even in the face of barriers to progress. Much work is conducted to understand what is good about families, their culture, and what they would like to achieve in treatment. Engagement is critical to working together to solve problems and the engagement process occurs throughout treatment (Cunningham and Henggeler 1999).

Following are the steps to the analytic process to show how the team determines interventions that will be needed to meet the family's needs.

1. Referral Behavior – the reason the family was referred to MST-CAN is defined with the family and referring agency. Parent and child behaviors are defined by frequency, intensity, and duration.
2. The desired outcomes are gathered from the child, family members, and any other key participants including the referring agency, CPS.
3. The desired outcomes are crafted into overarching goals which, when met, define the conclusion of treatment. Family members sign off on the goals.
4. For each referral behavior, the therapists conduct an assessment of fit. That is, factors that are driving the referral behavior, also known as fit factors. For example, youth engagement in substance abuse may be due to low parent monitoring, association with substance abusing peers, depression, or other factors specific to the family situation.
5. The fit factors or drivers of the referral behaviors are prioritized according to what seems to be the primary driver (e.g., low monitoring) and intermediary goals or small weekly goals towards meeting the overarching goal are set.
6. The intermediary goals lead the therapist to use research-supported interventions to meet the goal.
7. The interventions are implemented.
8. A continuous assessment is conducted regarding advances to the success of the intervention or barriers to carrying it out. If there are barriers, a fit assessment of the barriers is conducted to make sure the correct intervention is being carried out.

Every step of the analytic process focuses on understanding why the problem behavior is occurring and intervening through the ecology based on the outcomes they desire.

MST-CAN Clinical Structure

From its inception, Standard MST has provided services in the home and community of the family in United States and international sites. A home-based model removes practical barriers to treatment participation such as transportation and promotes the capacity of interventions to change the family's ecology. MST-CAN follows this service delivery model. For an agency to implement Standard MST or MST-CAN, it must agree to the clinical structure. The clinical structure for MST-CAN differs slightly from Standard MST. This modification was made because families involved with CPS require a great deal of adult intervention to lower risk of re-abuse. In addition, multiple

children in the family may need treatment so more time is needed with the family. In addition, families tend to have significant practical needs such as housing and jobs. Moreover, MST-CAN families commonly experience a high level of crisis that must be addressed rapidly to prevent re-abuse and out-of-home placement.

Key characteristics of the MST-CAN clinical structure include:

- Therapists work together in a team of three or four clinicians (similar to Standard MST).
- Each clinician carries a primary caseload of a maximum of four families (a smaller caseload than Standard MST).
- A full-time supervisor does not carry a caseload, freeing up time to support the clinical work (Standard MST supervisors carry a small caseload).
- A full-time family case manager works, as needed, with any family the team serves and provides services such as supporting job attainment, finding housing, budgeting, taking urine drug screens for substance abuse cases, assistance with school challenges, and more (not a position in the Standard MST team).
- Each team has access to 20% time of a psychiatrist or an advanced practice nurse for medication assessment and follow-up and to assist in the event of life-threatening crises (not included in Standard MST).
- Families receive services a minimum of three times per week, with sessions decreasing as the family makes progress (similar to Standard MST).
- Treatment duration is 6 to 9 months, depending on the size of the family, complexity of the situation, and success of the interventions (Standard MST treatment length is 4 to 6 months).
- Treatment is delivered at times convenient for families and is not based on certain office hours, so therapists work a flexible schedule (same as Standard MST).
- The clinical team is available to the family for crisis intervention 24 hours a day, 7 days per week, through an on-call system (same as Standard MST).

The team structure and home-based service delivery allows clinical teams to provide very intensive services that have been found critical to preventing out-of-home placements.

MST Quality Assurance System

A significant part of Standard MST and MST-CAN implementation is to be able to provide clinical services that achieve positive outcomes for families and that adhere to the clinical model. The quality assurance system focuses on supporting MST-CAN teams to achieve these goals by delivering treatment as close to the way it was delivered in research trials as possible. The quality assurance components include: (a) completion of 5 days of training as an orientation to the full Standard MST model; (b) completion of 4 days of training on MST-CAN and Reinforcement-Based Treatment (for adult substance abuse); (c) completion of 4 days of training on cognitive behavioral therapy-based treatment for adult and child trauma; (d) audiotaping of all trauma treatment sessions for supervisor and MST-CAN expert feedback; (e) participation in quarterly on-site boosters led by the MST-CAN expert assigned to the team; (f) weekly calls between the MST-CAN expert and MST-CAN supervisor to review cases for purposes

of convergence on weekly goals and intervention direction; (g) participation in weekly group supervision and individual supervision sessions as needed; (h) availability of a supervisor to assist therapists 24 h a day, 7 days per week; (i) weekly consultation with the MST-CAN expert, which involves a review of all cases and discussion of progress, barriers to progress, and agreements on next steps; (j) monthly phone calls to the family to conduct a brief interview that measures adherence to the Standard MST model and MST-CAN specific procedures and provides guidance on where work toward the nine principles needs to be tweaked.

Differences between MST-CAN and Standard MST

Each of the components of the Standard MST model discussed above is important to successful clinical outcomes. Slight modifications have been made to these components to meet the needs of families experiencing physical abuse and neglect. More significant differences between Standard MST and MST-CAN are found in adaptations to overarching model goals, inclusion and exclusion criteria, common practical and mental health interventions implemented. These differences are part of the MST-CAN model because the needs of families experiencing physical abuse and/or neglect are very different from those experiencing delinquent behavior in the youth.

Overarching Model Goals

MST-CAN has four major treatment model goals:

1. Keep families together safely.
2. Prevent re-abuse and neglect.
3. Reduce mental health difficulties experienced by adults and children.
4. Increase natural social supports.

MST-CAN goals differ from those for families completing Standard MST because of referral reason and population differences. With regard to Goal 1, MST-CAN and Standard MST both focus on preventing out-of-home placement. For families experiencing abuse and/or neglect, there is an element of safety that is considered in placement decisions. MST-CAN heavily focuses on family safety and nonviolent or non-neglectful parenting to prevent placement. Standard MST focuses on youth behavior, and parenting that manages youth behavior problems and negative peer association to prevent placement.

As noted earlier, causes and correlates of physical child abuse and neglect include mental health issues experienced by parents and children. In addition, families referred to MST-CAN programs typically have serious clinical needs. As such, Goal 3 addresses these risk factors as an attempt to prevent out-of-home placement and re-abuse. MST-CAN parents and youth may receive therapeutic interventions administered individually for issues such as trauma symptoms. Families who receive Standard MST work to resolve a different set of risk factors, those related to re-arrest. Although Standard MST youth may experience mental health problems such as substance abuse and aggression,

interventions are generally more practical and behavioral and are carried out by parents. There is less emphasis on parent mental health.

Families experiencing abuse or neglect tend to be isolated and have few social supports. The development of natural social supports (Goal 4) helps prevent abuse or neglect (Coulton et al. 2007). Establishing natural social supports is not a primary goal of Standard MST but by working with the ecology these supports are typically built.

MST-CAN research to be discussed shortly indicates that these goals can be met even when a family's problems are serious and chronic.

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria set for MST-CAN are based on the population treated in our research trials in which we attained clinical outcomes. In addition, these criteria are an effort to assure that families referred for MST-CAN are those experiencing the most serious difficulties and highest risk. The intensive nature of the treatment, psychiatry time, and small caseloads make the treatment expensive. However, the treatment is cost-effective with deep-end families that otherwise would lose their children to out-of-home care (Dopp et al. 2017).

MST-CAN is a treatment for families who have come under the guidance of CPS (i.e., have an open case) because of a credible report of physical abuse and/or neglect made within the last 180 days. The requirement of a credible report prevents the focus of treatment from becoming whether the event occurred or not. The 180-day requirement assures that families have experienced a fairly recent event for which there is leverage for change. The referral is made because of parent behavior not youth behavior as in Standard MST. Because of the age range in our clinical trials, the target child who is the subject of the maltreatment report is between the ages of 6 and 17, though younger children in the family are also the subject of treatment. Current initiatives are examining interventions more specific to development of very young children in the context of MST-CAN. So the inclusion criterion regarding age range is expected to extend downward in the future. Families may be long-term clients of CPS and children may be in placement at the time of referral with an expected rapid return with the help of intensive safety interventions.

Families are not accepted for referral if the child is in an out-of-home placement with no plan for reunification, or the youth is living independently or his or her caregivers cannot be determined despite extensive efforts to locate them. In cases where children have autism or pervasive developmental delays, families are referred to more appropriate services to meet the developmental needs. Finally, cases of active sexual abuse are excluded, as MST-CAN is not a treatment for sexual abuse. If active sexual abuse is not occurring but someone in the family is experiencing mental health symptoms such as depression of post-traumatic stress disorder from past sexual abuse, the family will not be excluded from MST-CAN. In such an instance, the impact of that sexual abuse will be one focus of treatment.

Relationship to Referring Agency

The primary agency involved with MST-CAN is CPS versus juvenile justice for Standard MST cases. CPS is the referral source for MST-CAN programs. MST-CAN views a

positive relationship between the clinical team and CPS and the family and CPS as critical to positive outcomes. MST-CAN team members work to facilitate such positive relationships and also help shoulder risk by intensive work on safety in the home and with the family. MST-CAN team members are in regular contact with CPS workers to advocate for the family, to create an inclusive team atmosphere, and to do whatever it takes to keep the family together safely.

Common Interventions Implemented

As with Standard MST, MST-CAN focuses on engagement with the family throughout treatment. Families involved with CPS may be particularly distrusting and fearful of losing their children. Getting to know the family as people and understanding their culture and traditions and community is important to developing trust. Also important is attaining information from the family as to who from their ecology they expect to be involved in treatment.

As noted earlier, Standard MST implements treatments that have at least some research support. MST-CAN follows this principle but many of the treatments differ because the needs of families experiencing physical abuse and/or neglect are different from those experiencing delinquent behavior in their youth. MST-CAN uses some procedures with all families and others with families experiencing specific mental health or parenting difficulties.

Two procedures are used with all families. As safety is a primary focus of treatment, extensive safety assessment and intervention protocols are implemented several times weekly. For example, initial family safety plans are developed immediately upon referral and reviewed at each session until safety is stabilized. Second, to address cognitions about the abuse or neglect and have parents (rather than children) take responsibility for the incident that brought CPS to the family, a clarification process (Lipovsky et al. 1998) is completed. In this intervention, the parent spends significant time discussing, writing, and revising a letter of responsibility and reads it to the family. Research evidence that the clarification process relates to positive parent outcomes (Swenson et al. 2000). Therapists also have reported this process to be helpful to resolution of the abuse or neglect and restoration of the parent-child relationship.

Implementation of other interventions is based on problems that the family is experiencing that indicate risk of further maltreatment. Interventions are tailored to the specific needs of family members. Although each family is unique, there are common problems that MST-CAN programs have identified. First, some families will have significant challenges with practical needs such as housing, budgeting, keeping a house clean, following through on medical needs of the child, job finding, extended family or community relationships. It is not uncommon for MST-CAN therapists to advocate for parents with a landlord who is deciding whether to evict a family. In addition, school-based interventions are often conducted when children are experiencing behavioral or academic problems. Moreover, some families exhibit inadequate parenting skills, so that behavioral parent training (Munger 1993, 1999; Webster-Stratton et al. 2001) will be implemented.

When the risk factors involve mental health difficulties such as post-traumatic stress disorder or substance abuse or family conflict (common problems in MST-CAN families), treatments that have research support are implemented. These treatments

include behavioral family treatment (Robin et al. 1994), cognitive behaviorally-based trauma treatment such as prolonged exposure for adults (Foa et al. 2007) and trauma-focused CBT for children (Cohen et al. 2006, 2012), and reinforcement-based treatment for adult substance abuse (Tuten et al. 2012a, b).

Research Support for MST-CAN

As noted, a small efficacy study examining an application of Standard MST to child abuse and neglect was conducted by Brunk et al. (1987), with favorable results. The current, better-specified version of the model was evaluated with a randomized clinical effectiveness study funded by the National Institute of Mental Health and conducted through a community mental health center in Charleston, South Carolina (Swenson et al. 2010). Eighty-six primarily African-American families who had substantiated cases of physical abuse in which the target child was in the age range of 10 to 17 were randomized to either MST-CAN or Enhanced Outpatient Therapy (EOT). The latter involved all parents attending a parenting group called Systematic Training for Effective Parenting of Teens (STEP-TEEN; Dinkmeyer et al. 2007; Gibson 1999) plus extra efforts on the part of the EOT therapist to engage the family in treatment, assist them with transportation and assure that they connected with referrals for treatments that they needed (e.g., individual child, family, substance abuse, anger management) for the problems they were experiencing. The confidence in the study outcomes was boosted by the occurrence of a 98% recruitment rate and high treatment retention rates for both groups (98% for MST-CAN; 83% for EOT).

Outcomes across 16 months post-baseline indicated that MST-CAN was more effective than EOT in reducing adolescent internalizing problems (dissociation, PTSD, internalizing and total symptoms of the Child Behavior Checklist), out-of-home placements, and for those who were placed out-of-home (e.g, foster care, residential), changes in placement. With regard to caregivers, MST-CAN was more effective than EOT in reducing caregiver psychiatric distress and parenting associated with maltreatment (i.e., minor assault, severe assault, neglect, psychological aggression). MST-CAN parents were more likely to use non-violent discipline. MST-CAN was significantly more effective at increasing caregivers' perceived social support from natural ecology members and caregivers indicated greater treatment satisfaction. Fewer MST-CAN youth experienced an incident of re-abuse reported to Child Protection. However, base rates were low, and the difference was not statistically significant.

A rigorous economic analysis of the findings obtained in Swenson et al. (2010) examined the monetary benefits of MST-CAN relative to its costs across individual (e.g., future mental health treatment), taxpayer (e.g., social services, out of home placements), and societal (e.g., reduced crime) domains (Dopp et al. 2018). Significant financial benefits were found for both taxpayers and society; specifically, the net benefit of MST-CAN versus enhanced outpatient treatment was $26,655 per family at 16 months post-baseline. Stated differently, every dollar spent on MST-CAN recovered $3.31 in savings to participants, taxpayers, and society at large when compared with Enhanced Outpatient Treatment. Thus the initial upfront expenses of MST-CAN services more than pay for themselves in a relatively short period of time.

In addition to these rigorous research evaluations, smaller site-specific pilot transportability studies are examining the feasibility, acceptability and client outcomes of MST-CAN implementation in diverse communities of Sydney and Brisbane, Australia, Holland, Switzerland, England, and Norway. The evaluation in Sydney is a qualitative study of implementation process and is in the beginning stages. A qualitative study of child protection caseworkers who managed MST-CAN cases in Queensland, Australia, found high rates of satisfaction with the model, including appreciation of the collaborative approach taken by therapists and a feeling of reduced burden and increased understanding in handling difficult cases (Hebert et al. 2014).

All of the other transportability studies to date have supported the feasibility and acceptability of MST-CAN model implementation. That is, teams have been hired, and the referral flow is strong. A working relationship has been fostered with CPS. The MST-CAN clinical team members are implementing the interventions expected and there is acceptance of treatment in the home. Clinical outcomes are being approached through a quasi-experimental design. MST-CAN parents and children are assessed pre- and post-treatment on key mental health measures. Re-abuse and out-of-home placement rates are being compared 6 and 12 months after treatment in families that completed MST-CAN versus matched comparison families that received services as usual. These results are forthcoming (Swenson and Schaeffer 2018b). The transportability studies have included physical abuse cases but primarily involve neglect cases. MST-CAN is cited as supported by research evidence by the California Evidence-Based Clearinghouse for Child Welfare and as a promising program by the Office of Justice Programs.

MST-Building Stronger Families (MST-BSF): Specialized MST-CAN for Parental Substance Abuse

As dissemination of the MST-CAN model began following the conclusion of the Swenson et al. (2010) clinical trial, the need to offer more specialized services to address parental substance abuse became quickly apparent. Parental substance abuse is indicated in 66% of all substantiated cases of child maltreatment and in 79% of cases that involve child removal from the home (Besinger et al. 1999; USDHHS 1997). Children of parents who abuse substances are 2.5 times more likely to be placed in foster care (USDHHS 1997) and, once removed, spend more time in out-of-home placements than do youth removed for other reasons (Vanderploeg et al. 2007). Since 2012, local child protection systems have seen significant increases in the number of maltreatment reports, substantiations, and foster care placements, corresponding directly to community polysubstance and opioid-related death and hospitalization rates (Ghertner et al. 2018).

Unfortunately, there are numerous systemic barriers that prevent parents involved in the child protection system from receiving effective treatment for substance abuse and retaining custody of their children. Chief among these is the failure of traditional substance abuse treatment services to comprehensively address the many co-occurring challenges facing these parents, including mental health issues, extensive trauma histories, housing and economic instability, and low parenting skill (Marsh et al. 2006; Small and Kohl 2012). In addition, few traditional substance abuse treatment

settings offer "family friendly" services (e.g., child care during sessions, flexible appointment times), and most are not versed in the needs of the child protective service system (USDHHS 1999). A recent qualitative study of child protection workers indicated that often, substance abuse treatment providers were unresponsive to CPS caseworkers' requests for information and were not sufficiently focused on child safety when addressing parental substance abuse (Radel et al. 2018). Without a high degree of coordination between substance abuse treatment providers and child protection professionals, case workers do not have the timely and problem-focused information about treatment progress needed to inform child permanency decisions.

In an effort to have substance abuse treatment services be more responsive to the needs of the parents and children they serve, child protection systems are increasingly bypassing existing service systems and contracting directly for services, a process known as "in-sourcing" (Radel et al. 2018). The Connecticut Department of Children and Families (CT-DCF) was a leader in this trend, approaching MST-CAN developers in 2005 to implement a specialized version of the model focused exclusively on the needs of child protection-involved families experiencing serious parental substance abuse. At the time, the concept of providing a full course of adult substance abuse treatment in a client's home was radical. Even today, there are no published articles (other than those involving MST) describing an adult substance abuse treatment model that uses a home-based service delivery model, beyond a handful of published home-based detoxification (e.g., Lerner et al. 1995) and buphenorphine-induction (e.g., Cunningham et al. 2011) studies.

In partnership with state- and local-level CT-DCF officials, and with funding from the Annie E. Casey Foundation (AECF), the process began to select a substance abuse treatment model consistent with MST-CAN, integrating the two models, and evaluating the new approach's efficacy began. Reinforcement-Based Treatment (RBT; Tuten et al. 2012a, b) was identified as an empirically-supported and compatible model for several reasons. First, in addition to having strong clinical trial outcome results itself (Jones et al. 2005; Tuten et al. 2011, 2017), the RBT model uses techniques shown to be effective across decades of behaviorally-based substance abuse treatment outcome research, most notably the Community Reinforcement Approach (CRA; Budney and Higgins 1998; Roozen et al. 2004). As the "latest generation" of behavioral treatment, RBT goes further by also incorporating techniques from motivational interviewing, another evidence-based approach, tailoring interventions to the client's current readiness to give up substances (Miller and Rollnick 2012). Second, the RBT model maintains a strength-based, relapse-prevention philosophy in which relapses are considered part of the recovery process and are not viewed as treatment failures. Finally, RBT has a strong commitment to client outreach and care coordination services. To differentiate the versions, MST-CAN developers and CT-DCF stakeholders opted to call this new, specialized version MST-Building Stronger Families (MST-BSF). Cindy Schaeffer, who had significant experience with Standard MST, undertook training in RBT with the Johns Hopkins researchers and led the development of home-based RBT in MST-BSF.

In the following sections, additional details about specific RBT interventions and how they are delivered within the context of MST-BSF are provided. MST-BSF efficacy research is also reviewed.

Reinforcement-Based Treatment for Substance Abuse

RBT is an incentive-based treatment designed for adults who abuse drugs or alcohol, including those who have issues of polysubstance abuse (Tuten et al. 2012a, b). Before its use in MST-BSF, RBT was delivered using an intensive outpatient treatment delivery model (Tuten et al. 2011). Like other behavioral treatments, RBT views substance abuse as a learned behavior that originates and is maintained by the reinforcement that people receive for using drugs. Because each individual's learning history is unique, the reinforcing aspects of drug use vary from person to person and usually involve both positive and negative reinforcement mechanisms. For some individuals, for example, drug use produces feelings of euphoria or well-being (i.e., positive reinforcement), whereas for others, drug use functions primarily to stave off withdrawal symptoms (i.e., negative reinforcement). More broadly, individuals might also have learned over time that drug use is a way to feel closer to others (e.g., using with friends or a partner: positive reinforcement) or to avoid intrusive thoughts (e.g., trauma memories: negative reinforcement).

Understanding why drug use "works" for each individual (i.e., its functions), therefore, is a key part of treatment planning. The RBT therapist's main task, then, is to help the client identify alternative ways to get the functions currently served by drug use (e.g., to have fun, to avoid feelings of failure) met in other, more positive ways. Stated differently, the therapist must find alternative reinforcers that will "compete" with drug use and work with the client to incorporate these into daily activities. For example, consistent praise for sobriety from a partner, increased time engaged in positive activities with children, and saving enough money (previously spent on drugs) to retrieve an automobile from the impound lot might combine to be more reinforcing to a particular client than the short-lived positive effects of getting high.

To support client efforts to achieve and maintain abstinence, RBT uses individual counseling approaches augmented by sessions with the natural ecology and a once per week relapse support group. Individual RBT treatment components include referral to short-term detoxification (5 to 7 days) when necessary (i.e., opiates or alcohol) to address physical dependency, the use of feedback as a motivational technique, coaching clients to use day plans to avoid unstructured time, and contracts for specific behaviors (e.g., agreeing not to walk past a corner where a drug dealer stands). To help clients make the links between their engagement in activities and sobriety, therapists create simple, visually-appealing graphs of clients' days abstinent (based on results of urine and breathalyzer testing), job goal attainment, recreational activities, and other important activities (e.g., amount of money saved for car) that are regularly reviewed with clients. Clients receive frequent verbal and tangible reinforcers (e.g., stickers and motivational comments on graphs) for progress in each area, and clients are guided to attribute their success in recovery to their commitment to the competing reinforcing activities. The recovery support group intervention is a weekly 2-h meeting called "Social Club," which provides an opportunity for clients to experience drug-free recreation and peer group reinforcement for treatment progress. Throughout this wide array of interventions, a range of incentives (e.g., monetary vouchers; certificates; ceremonies; peer praise) is used to initiate and maintain sobriety, and clinicians maintain a nonconfrontational, motivational stance. A feedback session in which the functions of the client's drug use, contributing factors, and current protective factors is

used early in treatment to summarize assessment findings, obtain client buy-in for making lifestyle changes, and tailor interventions.

In one randomized clinical trial involving adults who abused opiates, RBT was superior to standard outpatient services at increasing days abstinent, days worked, and income earned over a 6-month follow-up period (Jones et al. 2005). Retention in treatment was also higher in the RBT condition (Gruber et al. 2000). A second trial, also involving opiate users, found similar superior abstinence and employment rates for RBT than for standard services (Tuten et al. 2011).

RBT as Delivered within MST-BSF

RBT interventions are provided in individual sessions with parents in much the same way that other caregiver interventions (e.g., exposure sessions for trauma) are delivered in MST-CAN programs. RBT components are provided continuously and intensively throughout the course of treatment to ensure that sobriety and supporting activities become generalized and sustainable.

MST-BSF Structure and Duration

As with MST-CAN, a single MST-BSF therapist administers all intervention components to a particular family, supported by other team members (e.g., therapists rotate serving on call to manage after-hours crises). The team's crisis case manager, in particular, provides supportive services for all families (e.g., finding better housing, applying for health care benefits) and helps deliver many of the RBT vocational and recreational components (e.g., helping clients find jobs and recreational activities in their neighborhoods). Treatment duration usually ranges from 6 to 9 months, though some families may be served for up to one year, depending on severity and need.

Relapse Safety Planning

A central focus of MST-BSF is extensive planning for child safety in the event the parent relapses. All MST-BSF team members work closely with child protection caseworkers and supervisors to monitor child safety and gauge parent progress in obtaining sobriety and other goals. Substance use monitoring, for example, includes urine and breathalyser testing conducted randomly within the home a minimum of three times a week for the duration of treatment. Ideally, child safety plans involve collaboration with members of the family's natural ecology and contingences that require parental, not child, removal from the home until safety can be re-established (Swenson et al. 2009). MST-BSF and child protection staff convey jointly to parents their understanding that relapses often are a part of the recovery process, and that child removal from the home will depend ultimately more on the parent's adherence to safety plans and willingness to engage in substance abuse treatment than on the results of any particular drug test per se. The high degree of collaboration between child protection and MST-BSF therapists helps to ensure that parents receive clear and consistent messages about the expectations of the child protection system, and that MST-BSF therapists stay focused on goals most important for promoting child safety and permanence.

Flow of Treatment and Integration with Other MST-CAN Treatment Components

Prior to consenting to participate in MST-BSF, the purpose and implications of drug testing results during treatment are carefully explained to parents. Specifically, drug testing is for the purpose of clinical monitoring to determine success of interventions that help maintain sobriety (RBT). Despite a client's view that a positive drug screen is inaccurate or due to forces such as second hand smoke for example, RBT holds that a positive screen is a positive screen. Also, it is imperative that clients understand that results of drug and/or alcohol testing and updates on client progress are shared with CPS caseworkers. Immediately after the parents consent to MST-BSF treatment, urine and breathalyser testing is conducted, initial safety plans are developed (and, if the client tests positive, implemented), and a baseline assessment of drug use is obtained (RBT). For clients who have (or are suspected of having) a physical dependency on a drug (e.g., alcohol, opiates), a 5- to 7-day stay in an inpatient detoxification facility is recommended (RBT), and care arrangements are made for the children utilizing indigenous supports if possible. Next, family strengths and needs are assessed, and desired outcomes for treatment are obtained from multiple ecology members and stakeholders (e.g., caseworkers, teachers). Detailed functional assessments are conducted for all drugs used by the parent and regarding any physical abuse that has occurred. After the desired outcomes (i.e., goals of treatment) are determined by the family, the caseworker, and others pertinent to the family, the case is applied to the structured analytical process noted above. For each target behavior, fit factors or drivers of the problem are identified and interventions are developed to ameliorate the fit factor. Interventions are then planned and delivered to address the key drivers of the substance abuse, maltreatment, and any other desired client outcomes. For example, if it is determined that PTSD is the primary driver of the parental substance abuse, empirically supported treatment for PTSD is begun to reduce those symptoms, while simultaneously conducting RBT interventions and strategies to assist with child behavior problems.

Once a week, all MST-BSF clients who are able (i.e., not yet working; no child care responsibilities) attend a 2-h recovery support group called Social Club held at the provider agency. Throughout treatment, clients provide urine and breathalyser tests and positive reinforcement for clean screens is given using client graphs and other tools (e.g., a $10 voucher per clean screen for the first 14 weeks of treatment). Progress toward achieving job and recreational goals are graphed, discussed, and reinforced continuously as well, and motivational techniques are used to enhance client engagement in particular treatment components. A clarification process that addresses both maltreatment and parental substance abuse is conducted when the parent has sustained sobriety and sobriety-supporting lifestyle changes for multiple weeks. Treatment is considered successfully completed when clients have met their overarching goals child permanence in placement has been obtained and changes in target behaviors have been maintained for at least two months.

Research on the MST-BSF Approach

An initial feasibility study found that 87% of parents offered MST-BSF agreed to participate, and 93% of those who enrolled completed treatment (Swenson et al. 2009). This

completion rate surpasses those found for adults served in the general substance abuse treatment system (55 to 65%) who are not involved with CPS (Dutra et al. 2008).

A quasi-experimental pilot study of the MST-BSF model examined mental health and parenting outcomes of 25 mothers receiving MST-BSF (Schaeffer et al. 2013). MST-BSF mothers experienced significant reductions from pre- to post-treatment in self-reported alcohol and drug use and symptoms of depression. Mothers also significantly reduced their use of psychological aggression toward their children, and children reported significant decreases in anxiety symptoms. The 25 MST-BSF mothers were compared to 18 mothers from a matched comparison group on reabuse and out-of-home placement across 24 months. The comparison mothers received standard community services. Over a 24-month post-referral follow-up period, mothers who had received MST-BSF were significantly less likely than comparison mothers to have a new substantiated maltreatment report (20% vs. 61%, respectively) and had significantly fewer reports of reabuse. Although not statistically significant, children who participated in MST- BSF were half as likely as comparison children to have experienced a placement outside of the home (12% vs. 28%, respectively) (Schaeffer et al. 2013). A large-scale randomized clinical trial of MST-BSF, funded by the National Institute on Drug Abuse, recently concluded and results are forthcoming.

MST-BSF's successful outcomes with families in the child protection system can be attributed to several factors. First, by delivering treatment in families' homes and other community locations at times convenient to parents, MST-BSF overcomes many of the barriers to service access for families under the supervision of child protection described in recent national studies (Radel et al. 2018). In addition, MST-BSF integrates evidence-based treatments for adult substance abuse, child maltreatment, and parent and child mental health problems, to comprehensively address family needs. Moreover, the high degree of coordination of MST-BSF staff with the child protection system allows for the effective management of the risk to children's safety posed by caregiver substance use while also acknowledging that relapses often are a part of recovery and do not always necessitate child removal from the home. This coordination ensures that the contingencies placed upon parents by the child protection system are constructive and allows families to safely stay together during the time that it takes for the positive effects of the parent's substance abuse treatment to emerge.

New Directions for MST-CAN: Addressing Intimate Partner Violence

MST-CAN developers continue to enhance the model to address the evolving needs of the child protective service system. Again in partnership with the CT-DCF and with funding from the AECF, a version of MST-CAN specialized for child protection-involved families experiencing both child maltreatment and intimate partner violence, MST-IPV, is currently being pilot tested (Swenson and Schaeffer 2018a). The goal of MST-IPV is to provide an alternative to traditional domestic violence interventions, which tend to focus exclusively on extracting the victim of abuse from the relationship rather than ameliorating the violence between partners, for those couples who wish to remain together violence-free (Amarenti and Babcock 2016). Helping partners who are experiencing IPV eliminate violence and coparent children safely, regardless of whether they stay together as romantic partners, is particularly critical in the child protection

context. MST-IPV integrates an empirically-supported conjoint couples treatment for IPV, Domestic-Violence Focused Couples Therapy (DVF-CT; Stith et al. 2011), into the existing package of interventions for maltreatment and substance abuse offered by MST-CAN and MST-BSF.

Implementation of MST-CAN and MST-BSF

MST-CAN and MST-BSF are licensed through the Medical University of South Carolina (MUSC). A company called MST Services, has an exclusive licensing agreement with MUSC for the dissemination of MST-CAN technology and intellectual property. Under their licensing agreement, MST Services is also authorized to provide ongoing program support and training in the model to organizations that implement MST-CAN. MST-CAN has very strict requirements for implementation to support delivery of the model with fidelity. Agencies that wish to implement MST-CAN must develop goals and guidelines with MST Services, complete a feasibility assessment, and agree to the terms of MST-CAN implementation to become a licensed program. MST Services provides an MST-CAN expert who conducts weekly consultation with the supervisor and team and conducts training with the team. When MST-CAN or MST-BSF are implemented in a new country with a culture that differs substantially from that in the United States, a minimum 2-yr course of piloting is used to understand the cultural and system differences, learn from the professionals and families in that country and determine how to apply the model within the context. To date MST-CAN is disseminated to 6 countries across 3 continents. Pilot evaluation results are forthcoming. MST-BSF is disseminated in the state of Connecticut. MST-IPV is operating in the state of Connecticut and is under evaluation with the support of the Annie E. Casey Foundation.

Future Considerations

To date, MST-CAN had not veered from the strict inclusion criteria to assure that deep-end families are referred and that the fidelity of the research is maintained. These families are at risk of being in a revolving door with CPS and losing their children or requiring government intervention for years. These are the families for which MST-CAN is intended. However, there are many families who have been subject to a report of physical abuse or neglect and who are in crisis and in need of multiple services but their risk might not rise to the level of an MST-CAN referral. Likewise, there are families in crisis that have not been subject to a report or abuse or neglect but are at high risk of engaging in abusive parenting. Current development work is being conducted to extend a less intensive version of MST-CAN to those families.

A second consideration is to extend the working relationship with CPS to wield stronger influence in assuring that decision making for families is based on clinical information and goals rather than the passage of time or challenges in engaging families (e.g., cases closed and children placed when families are hard to engage). In our current

work with MST-CAN, great efforts are made to create a positive team atmosphere for the family, MST-CAN team, and CPS to be able to develop shared goals to help families complete treatment. This atmosphere is created through including caseworkers as part of the clinical team, developing a sense of shared responsibility for safety, engaging in ongoing consultation to solve problems, meeting with families together, conducting periodic review of goals as a team with the family, and including CPS in training on the model. The workers affected are those managing the cases. To include other caseworkers in training on decision making from an MST-CAN perspective, even if they are not monitoring an MST-CAN case, could spread benefit to families.

Conclusion

Child physical abuse and neglect are caused by multiple factors in the life of a child, parents, family, and social network. Some families who come under the guidance of CPS because of abuse or neglect experience multiple and serious risk factors and strong clinical needs that must be met to effect change and keep the family together safely. MST-CAN is a treatment model based largely on the Standard MST model but developed through clinical work and review of the existing maltreatment literature, piloted, and tested through rigorous research with the specific goal of meeting the needs of families in the most serious situations. Two modifications of MST-CAN were developed for the specialty populations of families experiencing physical abuse and/or neglect plus parental substance abuse (MST-BSF) and intimate partner violence (MST-IPV). Implementation of these treatment models involves a very structured goal-oriented dissemination model that provides intensive support to the clinical team providing the services and the agency. MST-CAN and MST-BSF are being successfully clinically disseminated across multiple countries among families who are culturally and linguistically diverse. Results from formal evaluation of these programs is forthcoming. MST-IPV, that involves specific protocols added to MST-CAN, is being evaluated through a quasi-experimental study in the state of Connecticut in collaboration with the Department of Children and Families, Wheeler Clinic, and the Annie E. Casey Foundation. Importantly, Child Protection workers that intersect with MST-CAN-based models report a strong endorsement of the collaborative model and in particular team availability, communication and partnership style that keep all focused on the clinical goals (Hebert et al. 2014; Swenson and Schaeffer 2018b). The ultimate goal is to bring hope to families that might feel their situation is hopeless and empowerment to give parents the skills and confidence to safely raise their children independent of treatment providers or CPS.

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The Medical University of South Carolina owns intellectual property rights to the MST treatment model. As such, the university receives royalties related to the treatment implementation.

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