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New directions in the treatment of child physical abuse and neglect in Australia: MST-CAN, a case study

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ABSTRACT

Child abuse and neglect cases present significant complex challenges for service providers. The aim of this study is to present the first implementation of an ecological model of treatment for child abuse and neglect, Multisystemic Therapy for Child Abuse and Neglect (MST-CAN), in the Australian context. The case presentation features a single parent family with two children aged 7 and 8 referred to the Department of Child Safety due to child neglect. The intervention addressed the multiple mental health and practical needs within the children's social ecology, as well as the precipitating and perpetuating factors for the case of neglect. Interventions targeted maternal depression, alcohol abuse, parenting, financial management, employment, housing, and family communication. Treatment goals of increased functioning across multiple life domains were met, including parent mental health needs, practical needs, and family reunification. MST-CAN provides a therapeutic framework to address the multiple needs of families with child abuse and neglect. Directions for further research and practice are discussed.

Keywords: Multisystemic therapy, child abuse, neglect, trauma, treatment

There has been a significant increase in reported child abuse and neglect in Australia over the past decade, rising by 45% from 40,416 in 2002–2003 to 58,563 in 2006–2007 (Australian Institute of Health and Welfare, 2007). Increasing demands for services as well as recogni-

tion of the enormous costs to society has prompted both Federal and State Government initiatives to develop and implement a National Child Protection Framework to advance the capacity of existing child protection systems to maintain the safety of Australian children (Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, 2008).

Child abuse and neglect has been associated with a broad range of adverse behavioural and psychosocial outcomes for children, parents, and the family in both the short and long term (see Swenson, Brown, & Lutzker, 2007 for a review). Short-term effects for example, include mental health difficulties such as depression, anxiety, and aggression (Hussey, Chang, & Kotch, 2006; Roth, Newman, Pelcovitz, vander Kolk, & Mandel, 1997). These difficulties can be manifested in adulthood as serious mental health problems such as substance abuse (Schuck & Widom, 2003) and suicidal behaviour (Creasey, Kershaw, & Boston, 1999).

Given the increase in maltreatment in Australia and the potential mental health impact for this population, it is critical for the country to implement effective interventions. Particularly important is the use of interventions that are evidence-based, keep families together, and promote child safety. MST-CAN is a treatment model that has demonstrated effectiveness and that focuses on family unity and safety or reunifying with their family children who have been placed. Prior to this study, MST-CAN has not been implemented in the Australian context.

This article reports on the first implementation of MST-CAN in Australia. We describe the model and the research supporting it and illustrate the model through a case study.

Multisystemic Therapy for child abuse and neglect

Theoretical basis

MST-CAN is an adaptation of Standard Multisystemic Therapy, which has been proven effective for reducing conduct problems among youth involved with juvenile justice. The theoretical model on which MST and MST-CAN are based is Bronfenbrenner's (1979) theory of social ecology. Within the context of this theory, children are part of a host of systems, including family, peers, school, and community. When children are in treatment, clinicians are also a system in their lives. The system that is closest to the child and the people with whom the child spends most of his or her time yield the most influence on the child. By definition, family is the closest and most influential system in the life of a child. Peers can also influence children, especially when children move into adolescent years. The system that yields the least amount of influence directly on a child is the clinician, as the clinician's time with the child is limited. Because the family is the system with the greatest influence and because sustainability of treatment gains is highly contingent on how the family gets along, problem solves, and how it is structured, MST and MST-CAN conducts interventions through the parent and family rather than with the individual child.

An ecological view of risk and protection

To understand what behaviours should be targeted and with whom interventions should be applied, factors within each of the systems that relate to key problems are assessed. For example, the research literature indicates that child abuse and neglect is related to risk factors across multiple systems such as parent (e.g., substance abuse; Widom, 1992), child (e.g., developmental delays; Sullivan & Knudson, 2000), and social network (e.g., social isolation; Vondra, 1990). Therefore, to effect meaningful and sustainable changes in maltreatment risk, factors across the multiple systems that seem to be driving the maltreatment must be attenuated.

From theory to clinical practice

Engagement

MST-CAN assessment and treatment is conducted in a context of engagement with families.

Families who come under the supervision of Child Safety may have difficulty engaging in treatment due to low trust and fear of removal of their children. In MST-CAN, taking a 'one-down' position is very important to attaining engagement. That is, therapists recognize the importance of the parent and family to understanding the problems that are occurring and the solutions that will resolve those problems. This recognition is viewed as more important to engagement and treatment success than recognition of the therapist's skill or expertise. Therapist empathy is also critical to engagement, as a caring and understanding adult who truly listens to the family's view of the problem and conveys confidence that the problems can be solved can set the stage for an atmosphere of collaboration (Cunningham & Henggeler, 1999). A positive attitude towards the client is important to maintain, even out of sight of the client. Critical and negative remarks are not allowed in the MST-CAN supervision sessions and the team discourages such talk about families in other professional environments. Even in the face of substance misuse relapse or a positive urine drug screen, MST-CAN therapists can keep engagement going through a non judgemental, positive, and problem solving stance. When engagement is broken, the therapist works hard with the client and ecology to resume the work in a positive way. In all relationships there are ups and downs, even in a therapeutic relationship. Generally, engagement issues can be overcome by identifying the barriers to engagement and putting in place interventions to overcome those barriers.

Analytic process

Nine guiding principles provide a common thread through all interventions and adherence to these principles relate to positive treatment outcomes (Huey, Henggeler, Brondino, & Pickrel, 2000). The principles guide assessment (e.g., identifying the key target behaviours and drivers of identified problems), design (e.g., action oriented, present focused, based on evidence-supported strategies), and implementation (e.g., remaining strength based, using general sable strategies) of interventions. Throughout treatment, the clinical team follows a structured recursive analytical process to conceptualise the case, establish and prioritise target behaviours, and understand which intervention techniques should be delivered. The analytic process is used in weekly supervision to assure that the interventions remain goal oriented and outcomes are evaluated continuously.

Assessment and goal development

Clinically MST-CAN includes an ongoing and extensive assessment process followed by implementation of evidence-based interventions. When a family is referred to MST-CAN, the first step is to thoroughly assess the family's strengths and target problems occurring in each of the systems (i.e., child, parent, family, school, community). Key individuals from each of the systems (i.e., child, parent, family, school, Child Safety) are interviewed to determine their desired outcomes for treatment. These desired outcomes are consolidated and become the overarching goals of treatment. Next, the drivers of major target problems that the family and Child Safety wish to resolve are assessed. For example, the clinician may discover that a single mother is having difficulty managing her children's behaviour due to severe anxiety related to having experienced a traumatic event such as domestic violence. When the mum attempts to enforce rules, the children make statements that were previously made by the person who committed the domestic violence and the mum who experienced this trauma shuts down and doesn't carry out the discipline. The grandparents reinforce the low parenting by stating in front of the children that the mum is too weak to be a parent. The children learn from these interactions that they can say things that prevent rules from being required in the family and that their grandparents support them being in charge. In such a case, the intervention would need to address the mum's trauma symptoms and

ways to implement parenting with the children. In addition, the grandparents would need to be a part of the treatment so that they can come to empower the mum to parent and to show respect for her in the eyes of the children. It should be noted that each family will most likely have different factors that drive the target behaviours. Thus, treatment must be tailored to the needs of the family rather than expecting the same intervention to work for every family. Importantly, in cases of child abuse and neglect, many target behaviours (e.g., child aggression, parental substance abuse, low parenting skills, youth substance abuse) and many driving factors for each of these target behaviours can be present for the parent, child and family and trying to address all risk factors can be overwhelming to the family and clinician. MST-CAN works to prioritise the risk factors that are the strongest drivers of the target behaviour.

Implementing evidence-based interventions

Once the clinician and family have determined the strongest drivers (e.g., parental substance abuse, low skills for managing anger) of the problem behaviour (e.g., harsh discipline), evidence-based interventions are applied to the drivers (e.g., contingency management for parental substance abuse and cognitive behavioural strategies for anger management). Interventions are conducted in the order of the strongest driver that needs to change. Continuous assessment of outcomes occur via observations, interviewing parents, child, or other family, and record keeping/data collection or use of standardised measures to assure that the family is making progress towards the overarching goals. When the family's overarching goals are completed, treatment is complete.

Clinically, MST-CAN uses evidence-supported or evidence-informed interventions for problems that are common to families involved with Child Protection including: (a) family safety planning (Kolko & Swenson, 2002); (b) use of functional assessment (Kolko & Swenson, 2002) to manage abuse risk; (c) Cognitive Behavioural Therapy (CBT) for parental PTSD (Foa & Rothbaum, 1998; Kilpatrick, Veronen, & Resick, 1982); (d) CBT for anger management (Feindler, Ecton, Kingsley, & Dubey, 1986; Novaco, 1994); (e) family communication and problem solving (Robin, Bedway, & Gilroy, 1994); (f) parental substance abuse treatment via a contingency management approach called Reinforcement-Based Therapy (RBT) (Jones, Wong, Tuten, & Stitzer, 2005); and, (g) parental acceptance of responsibility and clarification of the abuse or neglect (Lipovsky, Swenson, Ralston, & Saunders, 1998). It should be noted that safety protocols and clarification of the abuse are strategies used in all cases. Other treatment strategies are used only when needed to resolve a target behaviour. Generalisation and long-term maintenance of therapeutic change is effected through removal of client barriers to accessing support networks, acknowledging caregiver responsibility, and altering sequences of behaviours within or between multiple systems. MST-CAN advances existing services and clinical practice that currently focuses upon child or parent intrapsychic or family interaction factors alone.

MST-CAN programme structure

The MST-CAN clinical team consists of three to four clinicians, a full time crisis caseworker, a part time child and adult psychiatrist (roughly 20% time) and a full-time supervisor. Each clinician carries a caseload of three to four families. Given that all family members are the focus of treatment, on the average five people per family are served.

Treatment length averages six to nine months and families are seen multiple times per week. In many cases they are seen daily at first and gradually reduced to three times per week as improvements are seen. Services are generally provided in the home or other places that the family suggests, but rarely in the office. Clinicians work flexible hours to be able to see families at times workable

for the family rather than during standard office hours. Clinicians share in a twenty four hours per day, seven days per week on-call rotation to see families when needed at times of crisis.

A critical aspect of implementing an evidence-based model is to deliver the treatment as close to the way it was delivered in clinical trials to increase the likelihood of attaining positive clinical outcomes. To support fidelity, MST-CAN utilizes several components. The clinical team receives five days of orientation training in Standard MST, followed by four days of training in MST-CAN specific adaptations. On a quarterly basis, an MST-CAN expert provides an on-site booster training for the team. Weekly the supervisor participates in supervisor development via teleconference with the MST-CAN expert. In addition, the entire clinical team participates in weekly face-to-face group supervision with the MST-CAN supervisor and group teleconsultation with the MST-CAN expert—with all efforts focused on optimising family outcomes. Finally, families complete a monthly telephone interview to measure therapist model adherence.

MST-CAN: The research base

The application of MST to child abuse and neglect has been two-fold. First, Standard MST was compared to behavioural parent training in a small randomised trial (Brunk, Henggeler, & Whelan, 1987) with families where abuse and/or neglect occurred. Findings indicated that both Standard MST and parent training were effective in reducing parental psychiatric symptomatology and overall stress. MST was more effective than parent training at improving parent-child relations, amelioration of family problems, and increased effectiveness at key parenting behaviours. Parent training was more effective than MST at reducing identified social problems (Brunk, Henggeler, & Whelen, 1987).

The second application of MST to child maltreatment involved MST-CAN, whose effectiveness was evaluated in a randomised controlled trial with 86 families followed by Child Protective Services for physical abuse. Adolescents were ages 10 to 17 years. Families were randomly assigned to MST-CAN or Enhanced Outpatient Treatment (EOT). The study featured a 98% recruitment rate, and treatment completion rates of 98% for MST-CAN and 83% for EOT. Intent-to-treat analyses 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, changes in placement. With regard to caregivers, MST-CAN was more effective than EOT in reducing caregiver psychiatric distress and parenting associated with maltreatment (e.g., minor assault, severe assault, neglect, psychological aggression) and in reducing a decline in non-violent discipline. MST-CAN was significantly more effective at increasing caregiver social support and caregivers indicated greater treatment satisfaction. Fewer MST-CAN adolescents experienced an incident of re-abuse, but base rates were low and the difference was not statistically significant (Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, in press). Through these two randomised trials, MST-CAN has gathered evidence as an evidence-based treatment for families where child abuse and neglect occurs and where families are experiencing multiple and serious clinical needs. Transport of the model from the clinical trials, which were community-based, to practice in different regional, national, and international contexts is currently taking place.

MST-CAN in Australia

Extensive Queensland State Government reform within the child protection system was initiated with the 2004 release of *A blueprint for implementing the recommendations of the January 2004 Crime and Misconduct Commission Report, Protecting children: An inquiry into abuse of children in foster care* (Queensland Government, 2004). Deficits in therapeutic services for children in care prompted recommendation for identifica-

tion, implementation and evaluation of appropriate treatment programs for children in care experiencing severe behavioural and psychological problems. In response, the DChS identified MST-CAN, an evidence-based model for trial implementation to determine applicability to the Australian child protection context. A pilot study of MST-CAN was initiated by the Queensland Government Department of Child Safety, and conducted in collaboration with the Mater Child and Youth Mental Health Service in Brisbane and the Medical University of South Carolina Family Services Research Center. The current case study aims to provide an example of how the MST-CAN model can be applied in the Australian context to families with a substantiated case of child physical abuse and/or neglect.

The Current Case Study

The aim of the current case study is to describe the application of MST-CAN in the Australian child protection system. It was expected that implementing the MST-CAN model would establish sufficient environmental shift to promote normal child development and family functioning and reduce re-abuse potential by addressing multiple risk factors within the family's social ecology (individual child, parent, family, school, community).

Participants

Seven year old Megan (pseudonym) and her family were referred by The Department of Child Safety (DChS) to the MST-CAN team for treatment due to a substantiated notification of neglect. The two immediate harm indicators were unhygienic living conditions and unmet immediate care and protection needs. The risk factors for neglect identified by DChS were Megan's mother Ruth's depression and alcohol misuse. Due to the high risk of future harm, a family agreement was facilitated, with Megan and her eight-year-old brother being placed in the care of their maternal grandmother, and the family offered referral for an MST-CAN intervention.

Engagement

As with most families experiencing serious challenges in their personal life, engagement was a process that required work to attain trust of the whole ecology that had not had successful experiences with treatment in the past. Given that the children were placed with their grandmother, engagement would need to involve her, the mother, and extended family. In addition, because the mum had problems with alcohol misuse, relapses and disengagement were possible, as they are a common part of the recovery process. In the initial sessions, the treatment model was fully explained, including the component of alcohol and drug testing for the purpose of helping the mum reduce and eliminate use and the intensity of treatment was explained. Initially the entire family easily engaged but as treatment became more intensive and when the mum experienced alcohol relapses, she would disengage, greatly disappointing the family. Those times were frustrating for the clinician but MST-CAN has clear protocols for managing relapse and strong supports around the clinician. Generally, the mum reengaged rather quickly, especially when she saw that a relapse would not bring on punishment but instead was viewed as a learning opportunity. The clinician behaviours that helped with reengagement were patience, persistence, and a positive problem solving attitude.

Assessment of the target problems

Megan had a close relationship with her brother. She had average grades at school, and good peer relationships, though was sometimes reportedly discourteous at school. Ruth was a 27-year-old single mother with anxiety, depression and substance misuse problems. At the time of referral she experienced daily suicidal ideation without plan or intent. Her history was remarkable for sexual abuse in early adolescence by a family friend followed by rebellious behaviour that included substance abuse, school truancy, and later theft. As an attempt to cope with subsequent court proceedings and the death of multi-

ple friends, Ruth engaged in self-harming behaviour, involving cutting her wrist and a suicide attempt by drug overdose.

Ruth first became pregnant at the age of 16, which resulted in her parents asking her to move out of home. The baby was subsequently adopted. At 18 years of age, Ruth gave birth to Megan's brother and later to Megan. She continued an on-again, off-again relationship with their father until his death in a car accident two years prior. Ruth did not report current symptomatology related to the sexual abuse experience. Ruth reported depressive symptoms with intermittent suicidal ideation for the past two years. In the previous 12 months, she increased her use of alcohol to manage her emotions, drinking five to 12 standard drinks of wine each night, after the children had gone to bed. Ruth remained unemployed, and the family lived in rental accommodation. She had frequent phone contact with her sister, occasional contact with her brother and mother and very little contact with her father who was divorced from her mother.

Assessment of strengths and needs and fit (drivers) of the target behaviours

As noted earlier, the first step in MST-CAN is a comprehensive ecological assessment involving family members, extended family, school personnel, and the DChS caseworker. MST evaluates the strengths and the needs of the family system to identify key target behaviours and strengths to provide leverage for change. These are summarized in Table 1. The children's strengths included general positive behaviour and good functioning in school. Ruth had knowledge of positive parenting skills and a strong commitment to getting

Table 1: Ecological strengths and weaknesses

System	Systemic strengths	Systemic weaknesses/Needs
Child (Megan)	• Enjoys school and gets average grades • Generally happy and easygoing	• Sometimes discourteous at school
Parent (Ruth)	• Wants her children back in her care • Good planning skills to achieve tasks • Has hobbies/interests (cross- stitch, knitting, cooking, music)	• Alcohol abuse problem • Major Depressive Disorder • Homeless • Financial problems • Unemployed • Poor parenting strategies • Lack of transport
Grandmother	• Took children in and moved house to accommodate them • Worried/concerned about her daughter	• Job requires shift work • Poor relationship with Ruth
Extended Family	• Support from grandmothers • Some contact with extended family • Many relatives live in same town • Close relationship with sister	• Limited contact with grandfather • Minimal visiting from children's aunts and uncles
School	• Encourage parents to be involved in child's learning (reading group helpers)	• Ruth's low parent-school link
Peers – Child	• Has many friends she plays with at school • Is liked by many peers at school	• No longer lives in the neighbourhood since living with Grandmother
Peers – Mother	• Has one friend	• Does not allow people to visit • Friend lives in old neighbourhood; now difficult to visit
Community	• New suburb is a well established family suburb, friendly and safe	

her children back, some hobbies, and a supportive mother and family. Needs included Ruth's lack of parenting, resulting in the substantiated case of neglect, depression, substance misuse, low social support, grief over multiple losses, no housing, and low skills for job attainment. In addition, Ruth and her mother had difficulties with communication and frequent conflict. These needs would become key target behaviours for treatment.

Formal assessment of mental health symptomatology

Formal assessment included the use of psychometrically validated measures and clinical interviews with all relevant people in Megan's ecology including her mother Ruth, grandmother, Ruth's brother and sister, both children, Ruth's only close friend Monica, and Megan's school.

Child depression was assessed using the Children's Depression Inventory (CDI) (Kovacs, 1981). The total score threshold discriminating children at risk of depression from non-depressed children is set at 19 within a range from 0 to 54. Internalizing and externalizing behaviour problems were measured by parent report on the *Child Behaviour Checklist* (Achenbach, 1991). The clinical range is defined by T-scores above 63, with T-scores of 60–63 defining the borderline range.

Parent psychiatric distress was measured on the Brief Symptom Inventory (BSI) (Derogatis, 1975). The clinical range is defined by a score greater than or equal to a T-score of 63 on the GSI. Parenting was measured on the Parenting Scale *(*Arnold, O'Leary, Wolff, & Acker, 1993). Items are scored on a seven-point Likert scale with a higher global index of dysfunctional parenting scores reflecting greater ineffectiveness in parenting.

Goal development

The second step was to interview all key people involved to inquire about their view of desired treatment outcomes to establish the overarching goals. Ruth, her mother, her sister, Megan's teacher, and the Child Safety Officer were interviewed. Their views plus that of the clinical team indicated the following overarching goals that when met would signal the completion of treatment:

1. Ruth to abstain from the use of alcohol as evidenced by clean random drug screens, self report and family report. *Note: The consumption of alcohol was identified as a barrier to Ruth parenting effectively, engaging in depression treatment, maintaining accommodation, engaging in employment and managing finances which were necessary to providing a safe and stable home environment for the children. Ruth was unable to engage in a couple of social drinks. Once she started drinking, alcohol served as a trigger for multiple drinks.*
2. Decrease symptoms of depression as evidenced by self report (formal assessment), child report, family report and MST-CAN team observations. *Note: Ruth's depression was recognised as presenting a major barrier to effective parenting of the children.*
3. Ruth to secure stable, affordable and appropriate accommodation. *Note: Lack of stable housing posed a barrier to family re-unification.*
4. Ruth to engage in employment or education, as evidenced by current paid employment or participation in a tertiary education course. *Note: Lack of employment presented a barrier to Ruth's ability to meet financial responsibilities. Employment activity was also viewed as a protective factor against deterioration in mental health and alcohol misuse.*
5. Ruth to improve her parenting skills as evidenced by self report, child report, family report, school report and MST-CAN team observations.
6. Improved family communication as evidenced by self report and family report. *Note: Poor communication with extended family members were contributors to Ruth's depression and social isolation.*
7. The children to return to living with Ruth.

Assessment of drivers of target behaviours

The third step involved determining the key drivers (also known as 'fit' factors) of the target behaviours. The most high risk behaviour Ruth was experiencing was the *misuse of alcohol*. An assessment of fit determined that the top three drivers of this problem were depression, unresolved grief over multiple losses, and low prosocial activities. *No housing* was identified as a second target behaviour as Ruth would have to have a place to live to stabilise her life and have her children return to her. Fit factors for no housing included a rental blacklisting due to unpaid bills, low skills for budgeting, and no employment to sustain rental payments. The third target behaviour was *poor relationship with her mother*. Improving this relationship was essential to the children's adjustment and the social support it could bring to Ruth would be helpful to her progress. Fit factors for this poor relationship were low problem solving and communication skills. At initial assessment, Ruth displayed limited insight into the relationship between her depression and drinking and her mental state and the welfare of her children. Engagement with MST-CAN developed as an ongoing process throughout treatment as Ruth oscillated between hope of reunification with her children, and the extreme difficulty she anticipated in achieving this goal.

Implementing empirically-supported interventions

MST-CAN draws on evidenced-based treatments to reduce key target problems. A summary of treatments implemented for Megan and her family are summarized in Table 2. The treatments used were aimed at improvements in the drivers or fit factors. A major part of the intervention was focussed on keeping Ruth engaged in treatment. Relapses in depression and alcohol abuse early in treatment led to avoiding contact with the treatment team.

Results

Treatment outcomes were determined by observation, parent, child, and family report, and formal assessment. Two methods were employed to examine the clinical significance of changes obtained on dependent measures between pre-, and post-intervention. Clinical significance change as recommended by Kendall and colleagues (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999) involved examination of movement from the clinical to the non-clinical range on outcome measures, demonstrating a statistical clinical effect. To examine whether changes from pre- to post-intervention were reliable and not simply due to chance, the reliable change index (Jacobson & Truax, 1991) was calculated for each dependent variable. Table 3 summarises the clinical and reliable change on outcomes measures of parent and child functioning. The results of the interventions are described under the relevant treatment goal.

1. *Ruth to abstain from the use of alcohol*

   A positive screen consisted of testing positive on one of the three random breathalyser tests done each week, reported use of alcohol, or failure to be available for a screen. The number of days Ruth consumed alcohol during each month of treatment is illustrated in Figure 1. As treatment progressed, Ruth had maintained alcohol abstinence for an extended period with occasional relapse from which she quickly recovered with a greater knowledge of triggers and consequences.

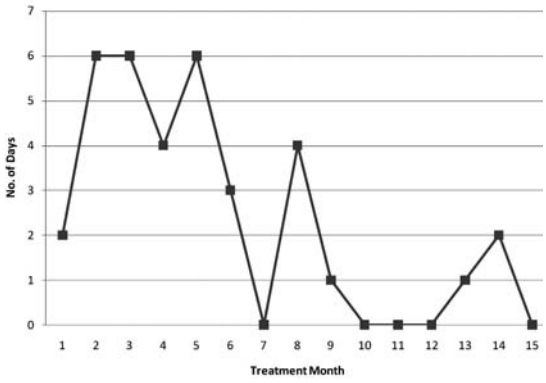

Figure 1: Number of days of alcohol use during each treatment month

Table 2: Summary of treatment interventions

Goal	Treatment	Overview of treatment	Length of treatment
1. Alcohol misuse	Reinforcement based treatment (Jones et al., 2005)	Random breath screens, voucher reward system Functional assessment of use, non-use and relapse, graphing of use, recreation, employment, housing and employment assistance Relapse prevention, managing cravings High risk planning	Random breath testing, 3/week Tapering to once per week at toward the end of treatment
2. Depression	Psychiatric review Antidepressant medication	Medication monitoring	As required
	CBT	Challenge automatic thoughts, maladaptive assumptions, and negative schemas. Behavioural interventions: activity scheduling, problem solving, communication skills, assertiveness and social skills training, self reward	2-3 sessions /week for 3 months Gradual decrease in sessions until remission Total = 48 sessions
3. Practical needs	Budgeting intervention	Budgeting skills training (assets and liabilities, income and expenditure, prioritisation of expenditures) Budget construction and implementation. Assessment of barriers to implementation. Budget review. Goal achievement review. Establishing routines around payment of rent and utilities.	Average of 1 session/ week for the first 3 months of treatment followed by monthly review Total = 18 sessions
4. Engage mother in employment/ education	Employment/ education	Accessing government Job Capacity Assessment and Intensive Support Program through Job Network agency, identifying skills and occupational preferences with appropriate link to training and assistance with job seeking. Identification and accessing of appropriate training opportunities for employment goals.	Average of fortnightly sessions over 7 months until employment Total = 16 sessions
5. Improve parenting	Triple P (Sanders et al, 2001)	Training in causes of children's behaviour problems, strategies for encouraging children's development, behaviour management strategies, identification of high risk parenting situations, planned activity routines.	Weekly parenting training sessions
6. Improve family communication/problem solving	Family communication	Family problem solving skill training, communication skill training (family communication assessment, modelling, behavioural rehearsal and feedback), cognitive restructuring for belief attributions of ruination, malicious intent, obedience/perfectionism (imaginal exercises, role play) and family.	Average of 1 session/ month family communication sessions Total = 9 sessions.
7. Abuse Clarification Process	Abuse clarification	Rationale of the clarification process, clarification of the abusive behaviours and acceptance of responsibility in letter format, parental assumption of the responsibility, and expression of awareness of the impact of the abuse on the chid	Clarification preparatory sessions and one clarification meeting. Total = 10 sessions

Table 3: Clinical and reliable change on parent and child outcomes measures

Measure	Pre	Post	Clinical change	Reliable Change
Parent Measures				
BSI-Global Severity Index	1.26	0.30	Yes	Yes
PS total	3.13*	2.70*	No	No
Child Measures				
CBCL- Aggressive Behaviour	10	5	No	Yes
CBCL- Internalising Problems	2	3	No	No
CBCL- Externalising Problems	12	8	No	No
Child Depression Inventory	22*	4	Yes	Yes

Note. *Clinical range. BSI – Brief Symptom Inventory; PS – Parenting Scale; CBCL – Child Behavior Checklist

2. *Decrease symptoms of depression*. By the end of treatment, Ruth's depression was in remission. Her scores on the Brief Symptom Inventory showed clinical and reliable change at post-treatment.
3. *Secure stable, affordable and appropriate accommodation.* Although Ruth moved in with her mother and her children periodically during treatment, improved family communication, and improved personal functioning resulted in a harmonious relationship between Ruth and her mother towards the end of treatment. Following revocation of Ruth's rental blacklisting through the team's case management efforts, Ruth's mother made plans for Ruth to take over her lease while she moved into smaller single accommodation. This decision maintained continuity for the children within their established educational and social network.
4. *Engage in employment or education.* At termination, Ruth had gained full-time employment and was considering further formal tertiary education.
5. *Use positive parenting strategies.* Ruth had partially resumed parenting responsibility; co-parenting with her mother. This included maintaining daily family routines and involving the children in community-based sporting and cultural activities. Her scores on the Parenting Scale, while still within the clinical range, showed a trend towards improvement.
6. *Improved family communication*. Family communication had improved, with Ruth reporting feeling more accepted by her family and reduced feelings of isolation. Importantly, she and her mother reported an improved relationship.

Although child functioning was not identified as a treatment goal, flow on effects resulted in reliable improvement in Megan's aggressive behaviour and depressive symptoms.

Discussion

The aim of this case study was to describe the application of an ecological model of treatment for child abuse and neglect in the Australian context. MST-CAN involves conceptualisation of child abuse and neglect from an ecological perspective and treatment of perpetuating and maintaining factors using intensive home-based service delivery of evidence-based treatment strategies. Building on systemic strengths to overcome needs within the social ecology, treatment goals targeted parental depression, substance misuse, family communication difficulties and parenting deficits as key drivers of the neglect, as well as employment, financial and accommodation barriers to family reunification. Post-MST-CAN treatment improvement was evident in parent functioning including financial management, educational and employment activities, and ability to obtain and maintain suitable and stable accommodation for the family. The results showed clinical improve-

ment in parent psychopathology, including depression and substance abuse, child aggressive behaviour and depressive symptoms. In addition, family relationships were improved, thereby reducing parent social isolation and improving social support. Comparison of the pre- and post-treatment measure of parenting strategies failed to show either clinical or reliable change despite a trend in the positive direction. This may be related to the relative short time since Ruth moved into the home with her children and the continued contribution of her mother to taking parenting responsibility of the children.

The case study serves primarily to demonstrate model application across multiple life domains and multiple ecological systems, highlighting advantages and limitations of the model and its implementation. The case study highlights the interdependency of clinical and practical risk factors within a family and the need to address them systematically in therapy. The difficulties often engaging clients with one problem, let alone multiple problems across multiple domains, highlights the need for an integrated team that can provide intensive in-home treatment and take responsibility for treatment engagement, thereby not allowing such clients to fall through the cracks. Collaboratively setting treatment goals provides a focus for the clinical team to stay focussed and engaged even when the clients become disengaged during periods of treatment. This is essential for clients such as those referred from the Department of Child Safety with complex clinical needs.

This case study highlights some possible limitations with the model. Economic analysis of Standard MST is based on the three to five months recommended for standard MST (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). The recommended time for MST-CAN is six to nine months based on the increased complexity and seriousness of ecological problems in a child abuse and neglect population. This case took 15 months to complete. Therefore, costs are higher than Standard MST. However, MST-CAN may be instrumental in preventing foster and institutional care, which may reduce costs. Further economic analyses will be needed to evaluate the cost effectiveness of the MST-CAN model.

The traditional allied health framework of practice includes office-based treatment and treatment strategies may not be evidence-based. MST-CAN challenges traditional treatment by exclusively delivering treatment into the home and community, working beyond traditional office hours, one therapist providing therapy to all family members, and the strict use of evidence-based strategies. Additional work may be required to foster acceptance of such a different method of mental health services in the Australian context. The demands on individual therapists involves flexibility and adaptability in planning work hours depending upon the needs of the families and as they change throughout treatment. The challenge for both individuals and organisations is if therapists commence work at standard hours and need to do therapy work with clients in the evening, the result may be a poor work/life balance for therapists and excessive hours accrued that organisations need to manage while still meeting the needs of families. Organisations and therapists need to work together to ensure that therapists can flex hours (e.g., come to work at midday on days they work until 7pm) and regularly use hours accrued through on-call service. In addition, given the crisis-oriented challenges the families in the program face, therapists need support to practice good self-care.

Further research is needed to evaluate the efficacy and cost-effectiveness of MST-CAN within the child protection system in Australia. This case study suggests benefit in targeting the multiple systems driving the idiosyncratic family presenting problems over traditional approaches which address either child, parent, or dyad psychopathology whilst maintaining perpetuating systemic drivers of the neglect. Future research needs to also evaluate the MST-CAN model against alternate treatment programs currently being used.

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References

Achenbach, T.M. (1991). *Integrative guide for the 1991 CBCL/4-18, USR, and TRF profiles.* Burlington, VT: University of Vermont School of Psychiatry.

Arnold, D.S., O'Leary, S.G., Wolff, L.S., & Acker, M. (1993). The parenting scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment*, *5*, 137–144.

Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (2008). *Australia's children: Safe and well. A national framework for protecting Australia's children.* Canberra: Commonwealth of Australia.

Australian Institute of Health and Welfare (2007). *Child Protection Australia 2006-2007. First National Results*. AIHW Cat. No. CWS31 (Child Welfare Series No 43). Canberra: AIHW.

Bronfenbrenner, U. (1979). *The ecology of human behaviour.* Cambridge, MA: Harvard University Press.

Brunk, M., Henggeler, S.W., & Whelen, J.P. (1987). Comparison of multisystemic therapy and parent training in the brief treatment of child abuse and neglect. *Journal of Consulting and Clinical Psychology, 55,* 171–178.

Creasey, G., Kershaw, K., & Boston, A. (1999). Conflict management with friends and romantic partners: The role of attachment and negative mood regulation expectancies. *Journal of Youth and Adolescence, 28*, 523–543.

Cunningham, P.B. & Henggeler, S.W. (1999). Engaging multiproblem families in treatment: Lessons learned throughout the development of multisystemic therapy. *Family Process, 38*, 265–286.

Derogatis, L.R. (1982). *Brief Symptom Inventory*. Baltimore: Clinical Psychometric Research.

Feindler, E.L., Ecton, R.B., Kingsley, D., & Dubey, D.R. (1986). Group anger-control training for institutionalized psychiatric male adolescents. *Behavior Therapy, 17,* 109–123.

Foa, E.B. & Rothbaum, B.O. (1998). *Treating the trauma of rape: Cognitive behavioral therapy for PTSD.* New York: Guilford Press.

Henggeler, S.W., Schoenwald, S.K., Borduin, C.M., Rowland, M.D., & Cunningham, P.B. (2009). *Multisystemic therapy for antisocial behavior in children and adolescents.* New York: Guilford Press.

Huey, S.J., Henggeler, S.W., Brondino, M.J., & Pickrel, S.G. (2000). Mechanisms of change in multisystemic therapy: Reducing delinquent behavior through therapist adherence and improved family and peer functioning. *Journal of Consulting and Clinical Psychology*, *68*, 451–467.

Hussey, J.M., Chang, J.J., & Kotch, J.B. (2006). Child maltreatment in the United States: Prevalence, risk factors, and adolescent health consequences. *Pediatrics, 118,* 933–942.

Jacobson, N.S. & Truax, P. (1991). Clinical significance: A statistical approach to detecting meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59,* 12–19.

Jones, H.E., Wong, C.J., Tuten, M., & Stitzer, M.L. (2005). Reinforcement-based therapy; Twelve-month evaluation of an outpatient drug free treatment for heroine abusers. *Drug and Alcohol Dependence, 79,* 119–128.

Kendall, P.C., Marrs-Garcia, A., Nath, S.R., & Sheldrick, R C. (1999). Normative comparisons for the evaluation of clinical significance. *Journal of Consulting and Clinical Psychology, 67,* 285–299.

Kilpatrick, D.G., Veronen, L.J., & Resick, P.A. (1982). Psychological sequelae to rape: Assessment and treatment strategies. In D.M. Dolays & R.L. Meredith (Eds.), *Behavioral medicine: Assessment and treatment strategies* (pp. 473–497). New York: Plenum Press.

Kolko, D.J. & Swenson, C.C. (2002). *Assessing and treating physically abused children and their families: A cognitive behavioral approach*. Thousand Oaks, CA: Sage.

Kovacs, M. (1981). Ratings scales to assess depression in school aged children. *Acta Paedopsychiatrica, 46,* 305–315.

Lipovsky, J.A., Swenson, C.C., Ralston, M.E., & Saunders, B.E. (1998). The abuse clarification process in the treatment of intrafamilial child abuse. *Child Abuse and Neglect, 22*, 729–741.

Novaco, R.W. (1994). Clinical problems of anger and its assessment and regulation through a stress

coping skills approach. In W. O'Donohue & L. Krasner (Eds.), *Handbook of psychological skills training: Clinical techniques and applications*, (pp. 320–338). Boston: Allyn and Bacon.

Queensland Government (2004). *A blueprint for implementing the recommendations of the January 2004 Crime and Misconduct Commission Report 'Protecting children: An inquiry into abuse of children in foster care.* Brisbane: Queensland Government.

Robin, A.L., Bedway, M., & Gilroy, M. (1994). Problem solving communication training. In C.W. LeCroy (Ed.), *Handbook of child and adolescent treatment manuals* (pp. 92–125). New York: Lexington Books.

Roth, S., Newman, E., Pelcovitz, D. van der Kolk, B., & Mandel, F. (1997). Complex PTSD in victims exposed to sexual and physical abuse: Results from the DSM-IV field trial for posttraumatic stress disorder. *Journal of Traumatic Stress, 10,* 539–555.

Sanders, M. R., Markie-Dadds, C., & Turner, K.M.T. (2001). *Standard Triple P: Practitioner manual.* Brisbane: Families International Publishing.

Schuck, A.M., & Widom, C.S. (2003). Childhood victimization and alcohol symptoms in females: An examination of protective factors. *Journal of Studies on Alcohol, 64*, 247–256.

Sullivan, P.M., & Knutson, J.F. (2000). Maltreatment and disabilities: A population-based epidemiological study. *Child Abuse and Neglect, 24*, 1257–1273.

Swenson, C.C., Brown, E. J., & Lutzker, J.R. (2007). Issues of maltreatment and abuse. In A. Freeman & M. A. Reinecke (Eds.), *Personality disorders in childhood and adolescence* (pp. 229–298). John Wiley & Sons.

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

Swenson, C.C., Penman, J., Henggeler, S.W., & Rowland, M.D. (2010). *Multisystemic therapy for child abuse and neglect*. Charleston, SC: Family Services Research Center, MUSC.

Widom, C.S. (1992, May). *Child abuse and alcohol use.* Prepared for the working group on alcohol-related violence. Fostering interdisciplinary perspectives, convened by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), Washington, D.C.

Vondra, J.I. (1990). Sociological and ecological factors. In R.T. Ammerman and M. Hersen (Eds.), *Children at risk* (pp. 149–170). New York: Plenum Press.