



# Multi-systemic Therapy (MST) and Functional Family Therapy (FFT): a review of the evidence

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## **1. About this review**

This review considers the best available local, national and international literature and evidence for multi-systemic therapy (MST) and functional family therapy (FFT), to inform the implementation of early interventions into mainstream Children's Services within Inner North West London (Hammersmith & Fulham, Kensington & Chelsea and Westminster).

### 1.1. Scope

This evidence review is intended to be a rapid summary of the best available research evidence and as such should not be seen to take the place of a full systematic review. The review draws on material from the following sources:

1. Evidence summaries, including key MST and FFT websites and sources (e.g. MST Services; FFT Inc; core texts)
2. Guidelines and review literature e.g. NICE guidelines and Cochrane systematic reviews
3. Local reviews
4. Experts and key stakeholders

Literature searches were undertaken by Colin Brodie and James Hebblethwaite of the Inner North West London PCTs Public Health Intelligence team

### 1.2. Key questions

There are two broad questions to be answered in the scope of this literature review:

What is the evidence of effectiveness and cost-effectiveness for MST in looked after children and children on the edge of care and custody?

What is the evidence of effectiveness and cost-effectiveness for FFT in looked after children and children on the edge of care and custody?

### 1.3. Methodology

To achieve the deadline for this project the evidence review will not be a systematic review, but will follow a robust process and provide a summary and synthesis of the key evidence on the topic.

For sources searched and search strategies please see the appendix. Papers were selected for inclusion or exclusion according to the following criteria:

<b>Inclusion Criteria</b>	Research which evaluates the efficacy or cost-effectiveness of MST or FFT interventions against the following outcomes: <ul style="list-style-type: none"> <li>• Anti-social behaviour</li> <li>• Repeat offending</li> <li>• Entry to care</li> <li>• High cost out of home placements &amp; associated activity with courts</li> <li>• School exclusion</li> <li>• School non-attendance</li> <li>• On child protection register</li> <li>• Looked after</li> <li>• Substance misuse</li> <li>• Family functioning indicators</li> </ul>
	The review is focused on MST and FFT and while other treatments are discussed in the broader context of early interventions these are not the focus of this study.
	International literature where it is relevant and generalisable i.e. largely this will be research conducted in 'Western-style' countries and not from developing countries. Most of the current research is from the US and Scandinavia
	Evidence published since 2001 (last 10 years). Earlier evidence may be incorporated when included in evidence summaries.
	English language only
<b>Exclusion criteria</b>	Due to time constraints summaries have been taken from abstracts where the full text was not readily available. Reviews where findings were not included in the abstract have not been included.
	Dissertation Abstracts
	Book reviews and chapters
	Due to time constraints primary research literature has largely been excluded, except in selected cases where there is a lack of review evidence e.g. UK based research

#### 1.4 Quality assessment

The articles mentioned in this review have not been critically appraised. The full text of the studies listed in this review have not all been accessed and summaries have been taken from either abstracts or from the narrative reviews. The studies chosen for this review have been chosen by a single reviewer. Commissioners are advised to read the primary research.

## 2. Introduction

### 2.1 Background

Antisocial behaviour creates major costs for society (Vizzaed, Jones, Vidding, Farmer, & McCrory, 2007). Prevention and treatment of antisocial behaviour is expensive, as are the legal proceedings and incarceration which often accompanies such behaviour. The social and emotional costs suffered by offenders, victims, and families of antisocial individuals are significant. Given the high burden and cost of antisocial behaviour, the development of effective evidence-based treatments for children at risk is essential.

The importance of early interventions in securing the best outcomes for children and young people is recognised in a number of recent government reports. Early intervention is described as *“intervening as soon as possible to tackle problems that have already emerged for children and young people”* (HM Treasury, 2007)

In the UK, 10-15 year olds are the largest group of children in care (Westminster City Council, c2011). Most enter care as a result of their behaviour, family dysfunction, acute stress or neglect. Most enter care voluntarily. For some young people care may not be the best option. Young people in care typically suffer poor outcomes in education, health and in emotional wellbeing.

Research suggests that spending on looked after children accounts for half of the children services budget nationally. The costs of placements for looked after children increase with age.

Over the past five years the Department of Education, in partnership with the Department of Health and the Youth Justice Board has supported a range of pilots of intensive interventions for looked after children and children on the edge of care or custody. These children typically have a range of complex and challenging behaviours which can result in out of home placements or placement breakdown. The interventions are:

- Multi Systemic Therapy (MST)
- Multi-dimensional Treatment Foster Care (MTFC)
- KEEP (parenting skills for foster carers)
- Functional Family Therapy (FFT).

Funding has been secured for INWL and the local authorities to work in partnership to integrate one of these interventions into mainstream Children’s Services. MST and FFT have initially been identified as the two most suitable options. The INWL Public Health Intelligence team will lead on completing a needs assessment which will help inform the decision on which of these two interventions is the most appropriate. This literature review is part of that needs assessment.

MST and FFT both originate in the US where they have been extensively evaluated and shown to work in reducing youth offending and are now being implemented in England. Though the evaluations in the UK are yet to fully report, early findings from these studies show some similarly positive results (Ross, Duckworth, Smith, Wyness, & Schoon, 2011).

## 2.2 What is Multisystemic Therapy (MST)?

MST is a community based, family -driven treatment for antisocial behaviour in young people (11-17 year olds) who are at risk of being placed out of home in care or custody, and their families.

The underlying premise of MST is that young people's difficulties are multi-causal, and so effective interventions would recognise this fact and address the multiple sources of influence. Using strategies from family therapy and behaviour therapy, MST focuses on the entire world ('social ecology') of the young person i.e. their homes and families, schools and teachers, neighbourhoods and friends.

The MST therapist works intensively with families in the community for 3-5 months, is on call 24/7 and goes to where the child is. The aim is to empower the parents and young person to solve current and future problems

MST teams usually comprise 2-4 therapists with a caseload of between 4 to 6 families.

Until recently the majority of MST programmes have been established in the US, however a number of pilot sites are in operation in the UK:

- MST - London Boroughs of Merton & Royal Borough of Kingston, London Borough of Greenwich, London Borough of Hackney, the Brandon Centre (Camden), Cambridgeshire, Leeds, Reading, Barnsley, Peterborough, Sheffield, Trafford and Wirral
- MST with adaptations - MST Child Abuse and Neglect (Cambridgeshire); MST for Problem Sexual Behaviour (Brandon Centre, Camden)

The Brandon Centre in Camden is running the first UK RCT on MST, and the Systematic Therapy for At Risk Teens (START) is a major research study (led by UCL) across 10 UK sites which aims to determine whether the provision of MST can:

- reduce the incidence of out-of-home placement
- reduce the incidence of severe mental health problems
- decrease antisocial behaviour
- improve educational outcomes
- improve family functioning.

### 2.3 What is Functional Family Therapy (FFT)?

FFT is a short term, phased, family prevention and intervention program targeting at-risk children and adolescents aged 10 to 18 whose problems range from conduct disorders to alcohol and/or substance abuse. It is behavioural in focus.

By working closely with the family, the FFT identifies and focuses on the risk and protective factors that impact the adolescent and his or her environment. The 3 key phases of FFT are

- engagement & motivation
- behaviour change
- generalisation

Each phase has targeted interventions and goals in order to tackle the risk factors and build on the protective factors. FFT aims to reduce defensive communication patterns, increase supportive interactions and promote supervision and effective discipline.

Typically the FFT intervention involves 8-12 one hour sessions (26-30 for more serious cases), over a 3-4 month period.

Again, like MST there is limited research on FFT in the UK although there is one pilot site at Brighton & Hove.

### 2.4 What is the difference between MST and FFT

MST and FFT are targeted at overlapping populations and there is a lot of similarity in terms of the outcomes achieved. However, there are some differences in the way these outcomes are achieved.

#### *2.4.1 Differences in Target Population*

FFT and MST have been shown to be effective for overlapping populations. FFT has been studied with youth ages 13 to 21 years old, although FFT programs will accept children as young as 10 years old.

FFT research has focused primarily on those with behavioural offenses (e.g., running away, chronic truancy, shoplifting, “ungovernable”) and substance abuse, but has also included young people with multiple serious offenses including felonies, and those returning home following incarceration.

MST research has shown the intervention to be effective for 12 to 17 year olds with chronic or severe antisocial behaviour, including youth with histories of violence or incarceration.

FFT may be a good fit when the child's behaviour is driven by family issues (e.g., high conflict, histories of abuse or neglect) or psychiatric concerns, or when the caregiver is initially reluctant to participate.

MST may be a good fit when the child's behaviour constitutes "wilful defiance" and is driven primarily by peer, school, or community factors, or when there needs to be immediate intervention outside of the family.

It is important to note that these suggestions are based solely on clinical reasoning; at this time, crucially, there is no research on how to best assign youth to the two programs.

#### *2.4.2 Differences in Outcomes Research*

FFT has more than 40 years of research behind it, and MST has been studied since the 1980s. Research shows that both treatment models achieve the following short-term (immediate) outcomes:

- greater likelihood the youth remains at home
- improved family functioning
- reduced substance use
- fewer youth mental health symptoms and/or behaviour problems.

In the long-term, both models have been shown to reduce criminal recidivism and arrest rates, decrease substance use, and decrease behavioural health problems.

Research on MST has also been found to improve peer relations, improve school performance, and increase the likelihood that the youth will attend school.

Research has also shown that the younger siblings of FFT participants are less likely to have contact with the court 2 ½ - 3 ½ years later.

**Important note: there is no research directly comparing the effectiveness of FFT with MST. Indeed there is a NICE recommendation that such research needs to be undertaken (National Collaborating Centre for Mental Health, 2010)**

#### *2.4.3 Differences in Treatment Models*

Both FFT and MST provide intensive treatment to children and young people with chronic, persistent delinquency and who are at risk for out of home placement. In both models, the frequency of sessions can be adjusted based on clinical need, allowing the service to be responsive to periods of crisis or high risk and to decrease the intensity for families with lower levels of need.

Both MST and FFT are strengths based, view improved family functioning as the path to resolving referral behaviours, and tailor the treatment to the families' situation.



However, there are also some differences.

- FFT works with the entire family, so the youth and his/her caregivers are present at every session. Consequently, sessions are often held afterschool and on evenings and weekends.
- MST can work with the caregivers, youth, or entire family. Sessions are often held with caregivers without the youth present. The therapist often intervenes in other systems, such as school or the peer domain, early in treatment.

### 3. Functional Family Therapy – The Evidence Base

#### Key Messages

- Clinical trials have demonstrated that FFT:
  - Effectively treats conduct disorder, antisocial behaviour, substance misuse, violent behaviour;
  - Prevents these adolescents from placement into more restrictive, higher cost services;
  - Reduces the need for other social services
  - Prevents further incidence of the presenting problems
  - Prevents younger children in the family from needing treatment
  - Prevents adolescents from involvement with the criminal justice system
- Good evidence base for FFT, although many of the early trials conducted by program developers in the US
- NICE recommends FFT as a programme which could be offered to children and young people who misuse alcohol and have significant co morbidities and/or social support
- May be particularly effective for older adolescents, where evidence for parent-training programmes is weak (National Collaborating Centre for Mental Health, 2010)
- NICE recommends FFT for those with predominantly a history of offending, where parents are unable to or choose not to engage with parent-training programmes, or the young person's conduct problems are so severe that they will be less likely to benefit from parent-training
- No systematic reviews have exclusively considered the effectiveness of FFT
- Low drop-out rate and high completion rates
- Importance of treatment fidelity, well-trained staff, and supervision are highlighted

#### 3.1 Overview

Functional Family Therapy (FFT), currently being trialed in Brighton, focuses on young people aged 11–18 years who display the early symptoms of repeated criminal behaviour, including violence. It works to enhance protective factors and reduce risk factors in the family.

The programme is rooted in evidence that family conflict, poor family management practices, academic failure and parental drug use and crime are among the risk factors that produce antisocial behaviour. FFT builds protective factors such as parent–child bonding, positive communication and skills to resist antisocial influences. As its name suggests, FFT is aimed at parents as well as their adolescent children.

Due to the emphasis on placed on engagement and retention FFT historically experiences low drop-out rates and high completion rates (Alexander, Pugh, Parsons, & Sexton, 2000).

FFT is one of the early intervention programmes identified in the Allen review (Allen, 2011) of “interventions that could be applied before the development of impairment to a child’s well-being or at an early stage of its onset, interventions which either pre-empt the problem or tackle it before it becomes entrenched and resistant to change”. FFT is summarized in the table below:

Functional Family Therapy (FFT)	A structured family-based intervention that works to enhance protective factors and reduce risk factors in the family. It is aimed at young people displaying antisocial behaviour and/or offending.	10–17 years	<p>FFT has been estimated to have a benefit-to-cost ratio of around 7.5:1 to 13:1. Clinical trials have demonstrated impacts in terms of:</p> <ul style="list-style-type: none"> <li>– treating adolescents with conduct disorder, oppositional defiant disorder or disruptive behaviour disorder</li> <li>– treating adolescents with alcohol and other drug misuse disorders, and who are delinquent and/or violent;</li> <li>– reducing crime; and</li> <li>– reducing likelihood of entry into the care system.</li> </ul>
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The Allen review reports that FFT, provided with fidelity, has been shown to reduce criminal recidivism, out-of-home placement or referral of other adolescents in the family for extra help from children’s services by between 25 per cent and 55 per cent. The programme is also proven to prevent adolescents with behaviour or drug use disorders from entering more restrictive and higher-cost services.

The Maryland Department of Juvenile Services identifies those who benefit from FFT as:

“Youth ages 10-18, and their families, at risk for and/or presenting with delinquency, violence, substance use, Conduct Disorder, Oppositional Defiant Disorder, Disruptive Behaviour Disorder, and depression. Often the families tend to have limited resources and exposure to multiple systems. FFT can be provided in a variety of settings, including schools, child welfare, probation, parole/aftercare, mental health, and as an alternative to incarceration or out-of-home placement.” (DJS Quality Assurance and Accountability Best Practices Unit, c2007).

In two reviews of parenting interventions FFT is identified as having a high level of evidence of effectiveness. The importance of high quality and well-trained staff, and combining work with all family members in different configurations is highlighted (Ghate, Hauari, Hollingworth, & Lindfield, 2008). While intensive, structured interventions such as FFT (and also MST) may be costly and resource intensive, they are likely to cost less than a quarter of institutional care (MacQueen, Curran, Hutton, & White, 2007).

### 3.2 Substance Misuse

Despite a limited evidence base, there is strong evidence for the use of FFT to promote abstinence and prevent relapse in children and young people. There is also strong evidence for MST, brief strategic family therapy, and multi-dimensional family therapy (MDFT). However, there is little evidence to determine whether one of the interventions had any advantage over the others (National Collaborating Centre for Mental Health, 2011).

This is supported by one well-conducted review (Vaughn & Howard, 2004) which found a relatively strong evidence base for FFT - the strongest evidence was for MDFT and cognitive-behavioural group treatment (CBT-G). A review of lesser quality (Waldron & Turner, 2008) ranks FFT alongside MDFT and CBT-G as an intervention for this same group.

Austin et al (Austin, Macgowan, & Wagner, 2005) found that the components of 5 family-based interventions, including FFT and MST, were consistent with the majority of guidelines for effective treatment. Again, MDFT (and Brief Strategic Family Therapy) were the most efficacious.

NICE recommends FFT as one of a number of evidence based multi-component programmes which could be offered to children and young people (10–17 years) who misuse alcohol and have significant co-morbidities and/or limited social support.

### 3.3 Personality/Conduct Disorder

NICE guidance (National Collaborating Centre for Mental Health, 2010) reports that there appears to be good evidence for the effectiveness of family interventions in a range of adolescents with conduct problems including offenders. FFT is recommended for those with predominantly a history of offending, where parents are unable to or choose not to engage with parent-training programmes, or the young person's conduct problems are so severe that they will be less likely to benefit from parent-training programmes,

NICE further recommends that a large-scale RCT comparing the clinical and cost effectiveness of multisystemic therapy and functional family therapy for adolescents with conduct disorders should be conducted.

In a review of FFT, MST and Oregon Treatment Foster Care (OTFC) the authors (Henggeler & Sheidow, 2003) attribute the success of these treatments to using the science base of known risk factors; providing an effective alternative to restrictive placements; and using scientific methods to evaluate effectiveness. Outcomes from a number of FFT trials are reported which overall show a significant reduction in recidivism compared to treated and untreated controls. Major features of these treatments are evidence-based development and integration; a

commitment to rigorous evaluation; treatment specification; quality assurance systems; and transportability and dissemination.

### 3.4. Criminal Justice and Offenders

There has been a consistent fall in the number of young people sentenced to custody in the UK since 2008. However, the UK still has one of the highest youth custody populations in Western Europe. Reconviction rates for young people following release from custody also remain high (Khan, 2010).

Citing Alexander et al (2000), Khan and Wilson report that FFT has been found to be much more effective than routine treatment in reducing reconviction rates in adolescent offenders with conduct disorders from a variety of ethnic groups over follow-up periods of up to five years. There is also evidence that it can lead to a reduction in behavioural problems among the siblings of the young offenders

Research undertaken in Scotland (Buist & Whyte, 2004) highlights that “research reviews do not point to any single outstanding approach that by itself is guaranteed to work as a means of reducing offending by children and young people.”

However, the authors report promising evidence of social interventions which can have a positive outcome. This includes FFT which has been shown to reduce the reoffending rates of youth by 25 to 80 percent in repeated trials, and in one trial of FFT with serious and persistent offenders showed that participants were almost six times as likely to avoid arrest (40% vs. 7%) as the control group.

In 2007 the Juvenile Justice Initiative (JJI) was set up in New York to provide evidence-based alternatives to custody for children who have committed serious offences and/or are repeat offenders (Solomon & Allen, 2009). Three community-based intensive therapeutic programmes were set up and were strictly based on models that have been subject to high quality evaluations which show they reduce reoffending by between 30 and 70%. These are:

- FFT
- MST
- Multidimensional treatment foster care (MTFC)

### 3.5 Cost Effectiveness

There is strong evidence that FFT is cost effective in preventing violence (Greenwood, 2004) and reducing re-offending (Aos, Miller, & Drake, 2006) . In their guidelines for antisocial personality disorder (National Collaborating Centre for Mental Health, 2010), NICE conducted

an economic analysis of FFT:

<b>Table 16: Results of economic analysis assessing the net costs (or savings) resulting from provision of functional family therapy to families of adolescents at risk for offending behaviour</b>			
<b>Costs per adolescent (2007 prices)</b>	<b>Functional family therapy</b>	<b>Control</b>	<b>Difference</b>
Functional family therapy cost	£121	0	£121
Cost of offending behaviour	£5,901	£8,809	- £2,908
<b>Total cost</b>	<b>£5,922</b>	<b>£8,809</b>	<b>- £2,787</b>

FFT resulted in a net saving of £2,787 per adolescent with offending behaviour over 2 years.

The Department of Education puts the cost per case at £2,239 in a working team of 3-8 therapists (Department for Education, 2011). Each therapist will work with between 30-50 cases per year

The Allen review (Allen, 2011) projects that a typical London borough with 35,000 children might expect to have 500 children in foster care, mostly adolescents. The cost of these foster placements will be about £18 million a year. Providing FFT as an alternative to foster care for 100 of these children would cost about £200,000, an annual saving of about £3.5 million. The economic benefits of foster care are not reported. Allen asserts that “each 100 FFT places would generate savings to the Exchequer of about £425,000, and Steve Aos at the Washington State Institute for Public Policy would calculate nearer £1.5 million.” Allen goes on to report an estimated benefit to cost ratio of around 7.5:1 to 13:1.

The Westminster City Council report on early interventions for adolescent looked after children (Westminster City Council, c2011) cites indicative costs from the US that project costs per family can be as little as \$2,000 per family. The US Blueprints for Violence programme reports costs ranging between \$1,600 and \$5,000 for an average of 12 home visits per family.

Although they quote slightly larger figures per case, according to Khan and Wilson (2010) FFT is less expensive (\$5,000–\$12,000 less per case) than custody or standard residential care and can achieve savings in crime and victim costs of over \$13,000 per case.

Ross et al (2011) cite a study (Aos et al, 2004) where a cost benefit analysis of an FFT program was estimated to save \$7.69 for every \$1 invested.

There is considerable research undertaken by the Washington State Institute for Public Policy ([www.wsipp.wa.gov](http://www.wsipp.wa.gov)) looking at the cost-effectiveness of a number of treatment models and evidence-based programmes, including both FFT and MST. This included an assessment of monetary benefit and costs in juvenile justice which found that FFT had a benefit to cost ratio of \$11.86 (and Return On Investment of 641%)

### 3.6 Transportability and Implementation

Morris et al (2008) cite a 2007 report by David Utting which argues that although it is used predominantly in the United States, such approaches as FFT have 'been applied successfully in a variety of multi-ethnic, multicultural contexts to treat a range of high-risk youths and their families'.

The lack of evidence and evaluation in the UK is highlighted in a review on interventions to reduce youth crime and antisocial behaviour (Ross et al., 2011). The authors call for more good quality evaluations in the UK. Only through this kind of evaluation can we establish which components of a programme contribute the most to overall effectiveness and for which types of people, under what circumstances, the service works best.

The programme developers (Alexander et al., 2000) point to the successful implementation of FFT outside of Utah where the original outcome studies were conducted. They argue that the flexibility and structure of the programme have allowed FFT to be utilized in a range of diverse settings such as University programmes, community mental health centres and integrated state/private sector programmes. Indications show that FFT can be learned through training workshops with appropriate follow up consultations and supervision.

Evidence shows that the programme has been successfully replicated in Sweden, and that the model is generalisable to a wide range of populations. Ross et al (2011) highlight that programme effects were only evident where there was strong adherence to the original design.

FFT is very suitable to implement in a community or agency which has an emphasis on a reduction in institutionalization, either incarceration or foster care. With a focus on family communication skills and parenting techniques, FFT would be most appropriate for communities which have assessed poor family relationships and negative parenting practices as risk factors.

### 3.7 Comments on the Evidence Base

While there is generally a strong evidence base for FFT a number of issues are highlighted in the literature:

- Initial studies were efficacy trials undertaken by the programme developers of FFT (and therefore potentially prone to positive outcomes)
- Most studies have involved samples of fewer than 100 families (JH Littell, Winsvold, Bjørndal, & Hammerstrøm, 2007)
- Follow-up periods range from zero to five years (some MST studies have longer follow – ups)
- FFT trials have been included in meta-analytic reviews of effects of a wider array of interventions with juvenile offenders and families, but these reviews do not report separate results for FFT.
- To date there is no separate systematic review on the effectiveness of FFT.



## 4. Multisystemic Therapy – The Evidence Base

### Key Messages

- MST clinical trials have demonstrated:
  - Reduced short and long-term rates of criminal offending
  - Reduced rates of out-of-home placements
  - Decreased substance use
  - Decreased behaviour and mental health problems
  - Improved family functioning
  - Cost savings in comparison with usual mental health and criminal justice services
- NICE guidelines report a relatively large evidence base concerning MST, with consistent evidence for reduction in offending outcomes including number of arrests
- Good evidence of efficacy for reducing offending for up to 14 years follow up
- NICE recommends MST should be considered for young people (12-17) with severe conduct problems and a history of offending, and who are at risk of being placed in care or excluded from the family.
- NICE suggests that due to the limited economic evidence from the US multi-component interventions may only be cost effective in high-risk children.
- Those who are likely to benefit most from MST are serious young offenders, however MST has been shown to be effective with young people with conduct disorder and anti social young people (Allen, 2011).
- NICE recommends MST as a programme which could be offered to children and young people (10–17 years) who misuse alcohol and have significant co morbidities and/or limited social support.
- Systemic interventions, including MST are recommended for older children and adolescents presenting with conduct problems who were still living at home (Vizzaed et al, 2007)
- However mostly US evidence, with early trials conducted by MST program developers
- The evidence of effectiveness of MST over other models has been challenged by some researchers. Programme developers have argued that studies which show a lack of effectiveness are due to a lack of treatment fidelity and the challenges setting up an MST service
- Treatment fidelity is vital to the implementation of MST.

### 4.1 Overview

As with FFT, MST is one of the treatment interventions identified as evidence-based and cost effective in the Allen review, and is summarised in the table below:

Programme	Description	Age of children involved	Measured examples of impact, outcomes and cost-effectiveness
Multisystemic therapy (MST)	A youth intervention that focuses on improving the family's capacity to overcome the known causes of delinquency.	12–17 years	The benefit-to-cost ratio of MST has been estimated at around 2.5:1. Noted outcomes from evaluations include: <ul style="list-style-type: none"> <li>– reductions of 25–70% in long-term rates of rearrest;</li> <li>– reductions of 47–64% in out-of-home placements;</li> <li>– improvements in family functioning; and</li> <li>– decreased mental health problems for serious juvenile offenders.</li> </ul>

The Allen review reports that MST has been shown in a number of rigorous tests to be superior to other interventions for adolescents exhibiting severe anti-social and criminal behavior. Positive outcomes include maintaining young people within their home and reducing out of home placements up to 50 %, maintaining young people’s involvement in education, reducing re arrest rates by up to 70% and decreasing adolescent psychiatric symptoms.

For MST interventions to achieve the best results, its therapeutic principals and processes must be followed. Key principles include:

- Caseloads must be kept low so that teams and supervisors can devote the necessary time to each young person and family
- MST practitioners are available 24 hours a day, seven days a week
- Research suggests the cohort of young people who will benefit most from MST are serious young offenders however MST has been shown to be effective with young people with conduct disorder and anti social young people.
- Collaboration with community agencies, particularly the school, is a crucial part of MST.
- While the initial MST involvement may be intensive, perhaps daily, the ultimate goal is to empower the family to take responsibility for making and maintaining gains
- Interventions should be present-focused and action-oriented, targeting specific and well-defined problems.

Treatment fidelity is vital to the implementation of MST. There is evidence of increased effectiveness when there is strong adherence to the original programme design (Ross et al., 2011).

Local services in London have employed the MST model (sometimes adapted) and have seen positive outcomes in a reduction of the number of children coming into care. These include the K&C Adolescence Service and the AMASS service in Islington. Positive outcomes are also being reported from 10 UK trial sites (London Borough of Hammersmith and Fulham, c2011) with 84% of families worked with having completed the programme, and 86% of young people still living at home at the end of the programme (unit cost £8,000 for six months).

There is a strong evidence base for MST, although there are still some gaps that have been identified. MST is recommended for adolescents with severe and long term difficulties, and particularly recommended for older adolescents and young people (MacQueen et al, 2007, citing Carr, 2000). MST has been shown to have positive effects on improved emotional health, educational outcomes, family relations, and decreased offending behaviour for looked after children and young people (Dickson et al, 2011), although the evidence for MST being more effective than other interventions is inconclusive. Dickson et al also note that none of the reviews in this area specifically focused on looked after children and young people, making it difficult to draw overall conclusions for this population.

In a systematic review (Allin, Wathen, & MacMillan, 2005) of treatment programmes for child neglect the authors identified one study which showed a decrease in psychiatric symptomatology and stress levels, and fewer individual and family difficulties, following MST.

Assessing the effectiveness of mental health services that provide an alternative to inpatient care for children and young people, Shepperd et al (2009) found that young people receiving home-based MST experienced some improved functioning in terms of externalising symptoms. They also spent fewer days out of school and out-of-home placement. Overall, however the authors conclude that the quality of the evidence base currently provides very little guidance for the development of services

Research by Morris et al (2008, citing Cox, 2005, and Utting, 2007) shows that MST is successful in achieving a number of service outcomes, including peer relations, aggressive behaviour, drug and alcohol use, improved family relations, decreased association with deviant peers, lower re-arrest rates, and time spent in institutions. However, Cox argues that there is little evidence of the success of the initiative in linking families to informal networks of support.

#### 4.2 Substance Misuse

The evidence base for MST as a treatment for substance misuse is similar to FFT. There is strong evidence for the use of MST, FFT, brief strategic family therapy, and multi-dimensional family therapy, but little evidence to determine whether one of the interventions has any advantage over the others (National Collaborating Centre for Mental Health, 2011).

Along with FFT, a well-conducted review (Vaughn & Howard, 2004) found a relatively strong evidence base for MST (the strongest evidence was for MDFT and CBT-G). Waldron & Turner (2008) report MST as probably efficacious.

Austin et al (Austin et al., 2005) found that the components of 5 family-based interventions, including FFT and MST, were consistent with the majority of guidelines for effective treatment. Again, MDFT (and Brief Strategic Family Therapy) were the most efficacious.

As with FFT, NICE recommends MST as one of a number of evidence based multi-component programmes which could be offered to children and young people (10–17 years) who misuse alcohol and have significant co-morbidities and/or limited social support.

#### 4.3 Personality/Conduct Disorder

NICE (National Collaborating Centre for Mental Health, 2010) reports that there is a relatively large evidence base for the effectiveness of MST for antisocial personality disorder. While there was significant heterogeneity (largely due to one particular trial), there is good evidence of efficacy for reducing offending for up to 14 years' follow-up.

The guidance recommends MST should be considered for young people (12-17) with severe conduct problems and a history of offending, and who are at risk of being placed in care or excluded from the family. NICE highlight the importance of treatment fidelity and also suggests that due to the limited economic evidence from the US multi-component interventions may only be cost effective in high-risk children.

At a 2007 conference (Vizzaed et al., 2007) delegates reached a consensus on what works in terms of early interventions for personality disorder:

1. Effective parenting interventions with young children displaying conduct problems who were still living at home.
2. Systemic interventions, including MST for older children and adolescents presenting with conduct problems who were still living at home
3. Effective, intensive fostering interventions with offending children placed away from home but not in care.
4. Effective community based interventions with the sub-group of antisocial children showing sexually harmful behaviour

Outcomes for conduct disorder and delinquency have consistently favoured MST compared to controls (Henggeler & Sheidow, 2003). Effects have included improved family relations and functioning, increased school attendance, decreased adolescent psychiatric problems, and substance abuse. Reduced recidivism ranges from 25-70%, and there is a reduction in the number of days in out of home placement.

#### 4.4 Criminal Justice and Youth Offenders

For adolescents, interventions such as multi-systemic therapy that focus not just on the family but also on the broader issues affecting the young person, appear to be more effective (Khan & Wilson, 2010) in tackling youth offending.

The over-riding message from the research is that very early intervention is most successful in achieving change in families with children showing signs of severe behavioural problems. MST (and FFT) have the strongest evidence base but they are also highly intensive and costly to deliver, suggesting that they should be targeted at those at greatest risk of persistent offending (ie. those whose behavioural problems start early in childhood). It is also worth noting that these interventions are cheaper than custody.

MST has been used by trained staff successfully in work with persistent delinquent youth and their families (Buist & Whyte, 2004). Scientific studies showed very positive results when compared to individual counselling e.g. with violent and chronic offenders living in a rural context, MST decreased incarceration by almost half (47%) at 1.7 year follow up. Evaluations have shown reductions in re-offending rates of persistent young offenders by 25 to 70% and while all forms of structured family therapies are expensive, they cost less than a quarter of institutional care.

Along with FFT, MST is one of the programmes on offer to children convicted of more serious offences (and repeat offenders) as an alternative to custody in New York State (Solomon & Allen, 2009). These interventions have been shown to reduce reoffending by 30-70%.

#### 4.5 Cost Effectiveness

MST is recognised as one of the most cost-effective treatment programmes for violence prevention (Greenwood, 2004). As with FFT, while MST may be costly and resource intensive the treatment model is likely to cost less than a quarter of what institutional care of such children would (MacQueen et al., 2007).

The WCC report confirms that the vast majority of MST academic literature and scientific evaluation originates from the US, and as such costs are predominantly in dollars. The report cites an earlier review that found the average program cost to be about \$4,500 per MST participant (in 1998 dollars). A more recent study estimated the average cost to treat one individual for psychiatric problems with MST at about \$8,200 (in 2004 dollars).

In their 2001 publication *The Comparative Costs and Benefits of Programs to Reduce Crime*, the Washington State Institute for Public Policy (Aos et al, 2001) found that MST had the largest impact of any of the 13 programs evaluated:

“Based on the Institute’s estimates, a typical average cost per MST participant is about \$4,743. Overall, taxpayers gain approximately \$31,661 in subsequent criminal justice cost savings for each program participant. Adding the benefits that accrue to crime victims increases the expected net present value to \$131,918 per participant, which is equivalent to a benefit-to cost ratio of \$28.33 for every dollar spent.”

A further analysis of the return on investment of the MST programme (Aos et al, 2011) suggested a benefit to cost ratio of \$4.07 and a 28% return on investment.

In the UK, an economic analysis of the MST programme at the Brandon Centre has reported, over a 3 year follow up, a total saving ranging from £1,211.24 to £8,924.76 per young person. This study compares MST and Treatment As Usual with Treatment as Usual.

The Department of Education has reported MST costs of £7-9k per average intervention. As the MST team consists of a supervisor and three or four therapists, the operational cost of running an MST team is approximately £350,000 per annum. The average per unit intervention cost is significantly lower than the average per unit yearly cost for mainstream foster care (£35k) or residential care (£120-£165,000).

#### 4.6 Transportability and implementation

The MST programme developers refer to independent evaluations of the effectiveness of MST as evidence that the model can be successfully transported to real-world settings (Henggeler, 2011; Henggeler, Schoenwald, Borduin, Rowland, & Cunnigham, 2009). They highlight the importance of the quality improvement system in supporting the transport of MST to community settings. With the association between treatment fidelity and youth outcomes well established, Henggeler (2011) argues that transportability research has demonstrated the significant roles played by clinical supervisors, expert consultants, and provider organizations in supporting therapist adherence and youth outcomes.

MST is currently running in ten sites across England, involving approximately 700 families, and is the subject of an ongoing randomised control trial being conducted by The Brandon Centre. This first UK RCT evaluation of MST follows 108 young people aged between 13 and 16 years and their families who were assigned to a group receiving either MST alongside the usual youth offending services (YOS) or one receiving only YOS services. Follow-ups have been conducted at 6, 12, 24 and 36 months. Initial findings show positive outcomes in terms of reduced offending, particularly for boys, and, in line with the international evidence, appear to work well with various populations, here holding across ethnicities (Ross et al., 2011).

Wells et al (Wells, Adhyaru, Cannon, Lamond, & Baruch, 2010) present a number of case studies to illustrate the MST treatment model in the UK. These examples include a violent young person convicted of robbery, a young person with a history of serious self-harming behaviour and hospitalisation, and a young person persistently smoking cannabis. All three cases improved after the MST intervention despite disparate presenting problems that included re-offending, the elimination of self-harming behaviour and a significant reduction in the use of cannabis. The authors conclude that this case series illustrates the potential uses of the MST model in CAMHS, although it is recognised that RCT data is needed to replicate the effectiveness of MST in the British context.

#### 4.7 Comments on the Evidence Base

While the majority of earlier studies point to the effectiveness of MST, later reviews have been more cautious. In particular, a Cochrane review (Littell et al., 2005) concluded that the effectiveness of MST was inconclusive. The authors analysed the results of 8 RCTs in USA, Canada and Norway, and found that pooled results that include studies with data of varying quality tend to favor MST, but these relative effects are not significantly different from zero. The study sample size is small and effects are not consistent across studies; hence, the authors assert that it is not clear whether MST has clinically significant advantages over other services. A number of points have been raised by the review:

- Highlights scientific problems with MST database: e.g., positive results not always based on the full group intended to be treated
- Points to unexplained variation in MST findings: treatment not consistently effective
- Underlines most rigorous test of MST to date failed to find positive results (Canadian Trial)
- Asks explicit questions about evidence largely from studies by the developers

The findings of the Littell review have been challenged by the MST programme developers and by researchers in Norway. They cite a number of methodological flaws in the study. In particular they argue that the meta-analysis gives emphasis to a Canadian study by virtue of the larger sample size, even though this study was unpublished and had not been subject to peer-review. They also raise questions of the studies selected for review and the heterogeneity of these studies. The importance of fidelity to the MST programme is also highlighted as an issue.

Dickson et al (2011) also highlight that the majority of MST studies were conducted by the programme developers and this may have influenced the positive findings.

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## Appendix

### ***(a) Sources searched***

#### Databases:

Cochrane Library [www.thecochranelibrary.com](http://www.thecochranelibrary.com)

MEDLINE (via NHS Evidence)

PSYCINFO (via NHS Evidence)

#### Key Websites:

NHS Evidence [www.evidence.nhs.uk](http://www.evidence.nhs.uk)

NICE [www.nice.org.uk](http://www.nice.org.uk)

FFT Inc <http://www.fftinc.com/>

MST Services <http://mstservices.com/>

Brandon Centre <http://www.brandon-centre.org.uk/multisystemic/>

National Criminal Justice Reference Service <https://www.ncjrs.gov/works/index.htm>

START (Systemic Therapy For At Risk Teens) <http://www.ucl.ac.uk/start/index.php>

Washington State Institute for Public Policy <http://www.wsipp.wa.gov>

C4EO <http://www.c4eo.org.uk/costeffectiveness/>

Google [www.google.co.uk](http://www.google.co.uk)

### ***(b) Medline literature search strategy***

(Note that this informed the strategy when searching other sources)

<b>Concept</b>	<b>Terms</b>
<b>Patient /Population</b>	Adolescents Adolescence Teenager Young people Youth Juvenile (US) *Use Age limit in database*
<b>Intervention</b>	Multisystemic therapy *Do not use MST as too many variables*
<b>Comparison</b>	<b>N/A</b>
<b>Outcome</b>	Anti-social behaviour ASBO Conduct disorder Acting out Juvenile delinquency" (US) Offending Custody Criminal justice Crime Court Care Out of home placements School exclusion School non-attendance Truancy Child protection register Looked after children LAC Substance misuse Mental health Family functioning
<b>Limits</b>	English language Date limits: 2001 to present