Multi-Systemic Therapy (MST) in Manchester

Interim Evaluation

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Introduction

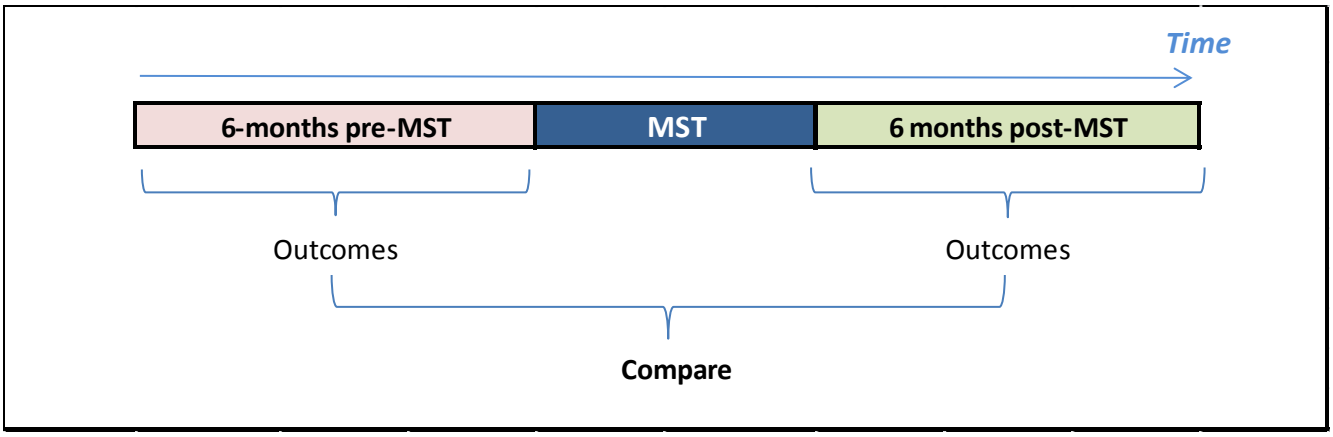
As part of its LAC reduction strategy, Manchester City Council (MCC) commissioned Action for Children to deliver Multi-Systemic Therapy (MST) to the city's eligible children and young people. MST is an intensive family and community based intervention for children and young people aged 11-17 who are at risk of out of home placement either in care or custody due to their offending or severe behaviour problems. The service works primarily with children who are living in a home environment with a primary care-giver. While children in a long-term out of home placement are not eligible for the programme, the service does work with children in care if an imminent return home is planned. In these cases, the role of MST is to support a successful return home. The duration of each intervention is usually around four to five months.

This interim evaluation examines the extent to which the aims of the programme are being achieved. MCC is especially concerned to understand the effectiveness of the programme in preventing the need for admitting Manchester children into residential care. The contract runs initially for two years, from April 2014 to March 2016; the analysis covers the 15-month period, from April 2014 to June 2015. This interim evaluation aims to inform future commissioning decisions.

Method

The purpose of this analysis is to estimate the extent to which the aims of the MST programme are being met, focussing particularly on those behaviours that put clients at risk of an out-of-home placement. A 'before and after' method is used to compare clients' outcomes during the six-months immediately before their MST intervention with an equivalent six-month, post-intervention period. This is illustrated in figure 1.

Figure 1:



This method has a number of limitations. First, ethical and logistical issues prevent accurate identification of a control group, which means that it is not possible to say with any degree of certainty what clients' outcomes would have been had they not participated in the intervention. This analysis, therefore, cannot address the issue of causality – i.e., whether observed changes in clients' behaviour occur as a result of the MST intervention or whether they are due to other factors. The more limited aim of this analysis, therefore, is to evaluate the extent to which the aims of the MST programme are being met, without attempting to attribute causality.

However, in order to offer some insight into the potential financial impact of the programme, the financial analysis creates a number of scenarios based on assumptions about the proportionate impact of MST on clients' behaviour and demand for reactive public services.

Second, as the programme has only been running for 15 months (at the evaluation date of 30 June 2015), only 12 clients have reached the six-month post-intervention point. This is quite a small number on which to base any conclusions and limits the ability to make any wider generalisations about the expected outcomes of future clients.

Third, six months is a relatively short period over which to assess clients' outcomes as improvements may not have become fully manifest during this time, making it difficult to identify new behaviour patterns that emerge (one randomised control trial, for example, indicates that MST's greatest impacts are not measured until 18 months post-treatment[1]).

Given these limitations, the main purpose of this study is limited to providing some initial insights into how clients' outcomes have changed over the (approximately) 16 month period (six months pre-intervention, four months intervention and six months post intervention).

The cohort

A total of 12 clients are included in the evaluation cohort. It is expected that 90-100 Manchester children will complete the MST programme during the two year contract. So, the evaluation cohort represents approximately 12% of the total anticipated cohort.

All the clients were aged between 14 and 16 years at the start of the intervention (average age 15.2 years); six were male and six female. Each young person (YP) commenced their engagement with the programme between April and August 2014. The duration of intervention for 11 of the clients ranged from 13 to 22 weeks with one case being completed in seven weeks.

The personal history of the clients during the period prior to MST intervention indicates that:

- Six of the cohort had been excluded from school, most on multiple occasions
- A further two were permanently excluded from school and being educated in a pupil referral unit
- Eight had recurring attendance problems at school
- Nine had one or more criminal convictions
- Five had been in an out-of-home placement (either residential or foster)
- Ten had a history of missing from home incidents
- Six had been assessed as at risk of child sexual exploitation (CSE)
- All were considered 'on the edge of care' prior to the MST intervention

[1] Butler, S. *Et al.* A randomized controlled trial of multisystemic therapy and a statutory therapeutic intervention for young offenders , J Am Acad Child Adolesc Psychiatry. 2012 Mar;51(3):337.

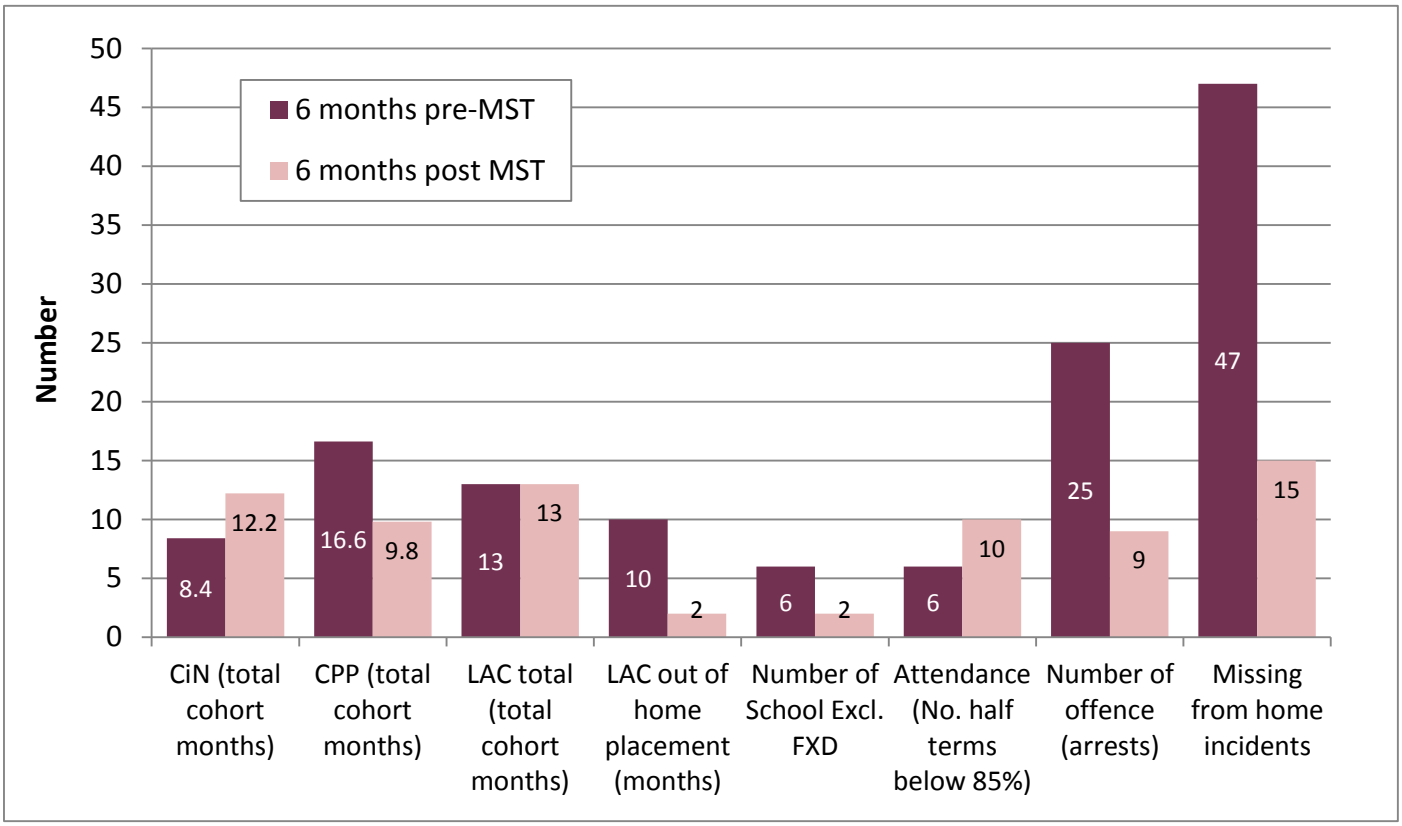
Outcome analysis

The purpose of the analysis is to identify changes in clients' outcomes over time. Social care, police and school records were examined to provide a before and after analysis, based on eight indicators:

- The total number of months the cohort spent as Child in Need (CiN)
- The total number of months the cohort spent subject to a Child Protection Plan (CPP)
- The total number of months the cohort spent as LAC
- The total number of months the cohort spent as LAC in an out of home placement
- The total number of fixed term exclusions
- The total number of half terms where attendance fell below 85%
- The total number of arrests
- The total number of missing from home (MFH) incidents

Outcomes for the pre-MST and post-MST periods are summarised in figure 2.

Figure 2: Clients' outcomes 6 months pre-MST and 6 months post-MST



Child in Need (CiN) status

This measures the total number of months that the whole cohort of 12 spent as CiN during the pre and post-MST periods.

The total number of months rose from 8.4 during the 6 months immediately prior to the MST intervention to 12.2 months during the 6 month period immediately following case closure. This increase is largely due to cases being de-escalated from either CPP or LAC.

Two young people (YP) were CiN during the pre-MST period; one of these remained CiN during the post-MST period while the other was de-escalated to universal services.

Two YP were escalated from universal services to CiN during the post-MST period

Child Protection Plans (CPP)
The total number of months the cohort spent subject to CPPs fell from 16.6 to 9.8.

Three clients were on CPPs during the pre-MST period: One was de-escalated to CiN during the post MST period; the other two remained CPP.

Looked After Children (LAC)
The total number of LAC months remained at 13 during the pre and post periods. However, the number of months spent in an out of home placement fell from 10 to two.

Four clients were LAC at some point during the 6-month, pre-MST period. By the end of the post-MST period:

- Two of them had been de-escalated to universal services
- One had moved from a residential to a home placement with parents
- The home placement of the fourth client had been maintained.
- In addition, one client previously on a CPP escalated to LAC during the post-intervention period before reverting back to CPP

School attendance and exclusions

- The number of fixed term exclusions reduced from six to two but attendance deteriorated with the number of half terms where attendance was below the 85% threshold rising from six to ten.
- Two pupils remained at a pupil referral unit (PRU) for the whole evaluation period.

Offending behaviour

- The number of cohort arrests during the pre-MST period totalled 25.[2] The majority of these were for assaults or theft/robbery. By contrast, the number of arrests during the post-MST period amounted to just nine.
- Eight clients were arrested at least once during the pre-MST period. Of these:
    - Five clients were not arrested at all during the post-MST period
    - Two clients increased their offending activity
    - The level of offending activity remained the same for one client

Missing from home incidents (MFH)

- Eight clients were reported MFH on a total of 47 occasions during the 6-month, pre-MST period
- During the post-MST period, the total number of incidents had fallen to 15; four of the eight YP had no further MFH instances; three saw a reduction, while one remained at the same level.

To summarise, when the six-month period immediately prior to MST intervention is compared to the six-month period following case closure, the data clearly shows improvements on all measures except CiN and school attendance. In particular, three of the four LAC clients saw improvements, with either de-escalation to universal services or successful home placements, while the fourth saw the continuation of a home placement. Notable improvements are also recorded for offending behaviour and substantial improvement in the number of MFH incidents is evident.

[2] Note: these are arrests, not convictions.

Financial analysis

Costs

The commissioning costs of the contract are £360,000 per annum and, to date, Action for Children are delivering 45 cases each year. This amounts to £8,000 per client (360,000 / 45). A cohort of 12, therefore, amounts to £96,000 (£8,000 x 12). To this, 5% management and evaluation costs have been added, resulting in a total cohort cost of £102,720.[3] These costs are borne wholly by MCC.

Fiscal Benefits

Monetary benefits have been calculated from reduced demand for services during the post-MST period compared to the pre-MST period. Monetary values for the following benefits were included in the analysis:

- Crime reduction
- LAC – reduced out of home placements
- Number of CPP months
- Number of CiN months
- Number of MFH incidents

It should be noted that this analysis focuses solely on the impact of the programme on public spending; it does not include the wider social or economic benefits of the programme.

Unit costs for crime reduction, LAC placements, CPP and CiN were obtained from the New Economy *Unit Cost Database*; the LAC placement costs are based on the average for all types of placement (including residential and foster care). The costs of MFH incidents were sourced from research carried out by the University of Portsmouth[4]

In order to overcome the methodological limitations of the analysis – namely, the absence of evidence regarding the counterfactual and the short period over which it has been possible to measure outcomes – the monetary benefits have been modelled, creating a number of scenarios:

The first scenario is based on the actual outcomes measured over the six month post-MST period only. It makes no assumptions about the extent to which benefits persist beyond the measured outcomes period. Neither does it make any assumptions about the extent to which benefits are attributable to MST, nor the number of clients that would have otherwise be taken into residential care. This scenario simply looks at the financial impact of clients changed outcomes during the 6-month post-MST period.

While this is based on the actual evidence available (from the outcome analysis above), it is insufficient for developing a realistic estimate of the financial impact of the programme as there are currently too many unknown factors. These are:

1. To what extent do clients' improved outcomes persist beyond the 6 months post-MST period measured?
2. To what extent are the improved outcomes attributable to MST and what proportion due to other factors (deadweight)?
3. Given that a primary aim of the programme is to reduce clients' risk of out-of home placements, a key question is: How long would clients be expected to spend in care had they not engaged with MST?

[3] Adjusted for optimism bias.
[4] Greene, K.S. & Pakes, F., "The costs of missing person investigations", 8/1, 27-35 (2013) (http://policing.oxfordjournals.org/content/8/1/27).

The financial model addresses these issues by replacing the unknowns with a range of assumptions to illustrate potential cost savings. Where assumptions are included in the analysis, every effort is made to err on the side of caution. Consequently, the results obtained should be regarded as conservative and reflective of the minimum likely benefits returned.

Scenario 1 – Based on actual 6-month measured benefits

Here, the savings from improved behaviour and reduced demand for reactive public services during the 6-month post-MST period (compared to the pre-MST period) are measured.

Gross benefits (savings) for the 6-month period totalled £86,675. Breaking this down by outcome type indicates that savings from the large reduction in MFH incidents accounted for one-half of the total, with just over one-third coming from reduced costs of residential placements (figure 3).

Breaking the total down by benefitting agency indicates that one-half accrues Greater Manchester Police (GMP) and 42% to MCC (figure 4).

When set against the costs of delivering MST to the cohort of 12, the monetary benefits from the first six (post-intervention) months cover 84%, with £0.84 returned for every £1 invested (Table 1).

However, as noted, Scenario One takes no account of:

1. The potential for continuation of benefits beyond the six-month post-MST measurement period;
2. The proportion of benefits that can be attributed to the MST intervention and the proportion that is brought about by other factors (deadweight);
3. The extent to which the intervention has prevented clients from being taken into care.

Figure 3: Fiscal benefits by outcome type

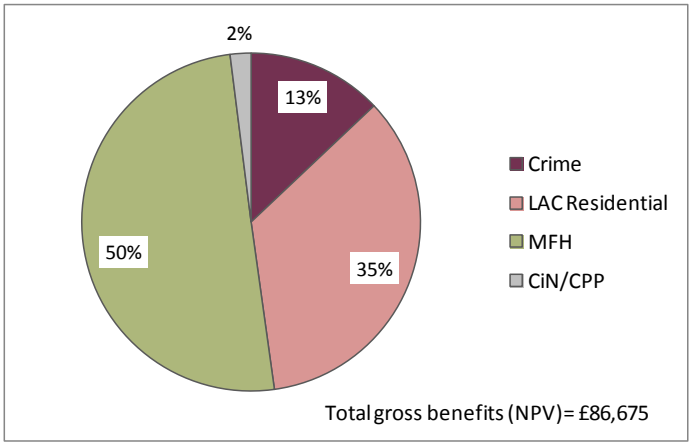


Figure 4: Fiscal benefits by benefiting agency

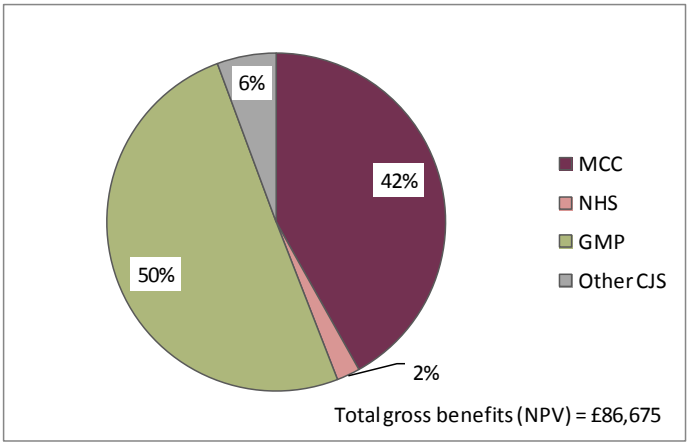


Table 1: Scenario 1 CBA

Financial Case (Fiscal CBA)		Financial Year		Net Present Value (NPV)	
		2014-15	2015-16		
Actual costs	Costs	102,720	-		
	Benefits	61,316	26,278		
Discounted costs	Costs	102,720	-	102,720	
	Benefits	61,316	25,359	86,675	
				16,045	Net Present Budget Impact
				0.84	Overall Financial Return on Investment
				- years	Payback period

Scenario 2 – Modelling the benefits over five years

This scenario modifies Scenario One with the following assumptions:

1. Diminishing returns - It is reasonable to assume that many of the improved outcomes measured during the first six months post-MST will persist over the coming years (i.e. it is unlikely that clients will immediately revert to pre-treatment behaviour patterns). Consequently, the improved outcomes measured in Scenario 1 are projected forward for a period of five years on the following schedule: year 1 = 100% impact, year 2 = 80%, year 3 = 60%, year 4 = 40%, year 5 = 20%. This diminishing scale errs on the side of caution to allow for substantial recidivism, such that by year five only 20% of the initial improvement is assumed to be evident.[5]

2. Deadweight - In this scenario, deadweight is assumed to be 50% - i.e. only 50% of the improved outcomes are attributed to the MST intervention; the other 50% is assumed to be caused by other factors. Clearly, it would be unrealistic to assume that all the benefits were directly attributable to the MST intervention as client profiles indicate their involvement with a range of services over many years and the context of a broad LAC reduction strategy must also be accounted for. On the other hand, a requirement of MST providers that other services withdraw for the duration of the intervention perhaps supports a case for attributing a substantial proportion of the improved outcomes to MST. Consequently, 50% may be a reasonable (if very approximate) estimate of deadweight.

3. Preventing out-of-home care - A key aim of the programme is to reduce the number of children that need to be admitted into some form of out-of-home care. But, in the absence of a control group, it is not possible to determine the amount of time clients would have subsequently spent in residential care had they not received the MST intervention. However, we know from case notes that all MST clients are considered to be on the edge of care (and five of the 12 had previously been in an out-of-home placement). All referrals to MST are made through the Family Resource Panel (FRP) and examination of referral notes indicates serious concerns for clients' unmanageable behaviour putting their welfare and safety at risk. Clients are reported as exhibiting multiple problems, commonly: aggressive and volatile behaviour, unsafe sexual behaviour, substance abuse, low-level mental health problems, breakdown of parental and family relationships and concerns for the safety and wellbeing of other family members. This in itself does not, of course, mean that a LAC placement is inevitable; but it does imply a high level of risk.

This scenario assumes that MST prevents a single placement of two months duration for each child.[6]

[5] Social care costs are projected forward for only three years to account for the age of clients.

[6] As noted previously, the analysis is based on the average cost of all types of LAC placement, including residential and foster.

Based on these assumptions, the programme generates net savings of £126,841 over a five year period, returning £2.23 for each £1 invested and breaking even by the end of year two (Table 2).

43% of gross benefits are accounted for by reduced LAC placement costs (figure 5), with 46% coming from reduced MFH incidents and 10% from reduced offending (figure 4). This is reflected in the benefitting agencies, with 49% of benefits accruing to MCC and 45% to GMP (figure 5).

Clearly, only around one-half of the benefits accrue to MCC in this scenario. This does suggest, however, that MCC breaks even, with £112,485 returned (£229,561 x 49%) for the initial investment of £102,720. This reflects a BCR ratio for MCC of 1.09.

Table 2: Scenario 2 CBA

Financial Case (Fiscal CBA)		Financial Year					Net Present Value (NPV)	
		2014-15	2015-16	2016-17	2017-18	2018-19		
Actual costs	Costs	£ 102,720	£ -	£ -	£ -	£ -		
	Benefits	£ 45,598	£ 117,940	£ 35,593	£ 25,819	£ 15,918		
Discounted costs	Costs	£ 102,720	£ -	£ -	£ -	£ -	£ 102,720	
	Benefits	£ 45,598	£ 113,812	£ 33,145	£ 23,202	£ 13,804	£ 229,561	
							-£ 126,841	Net Present Budget Impact
							£ 2.23	Overall Financial Return on Investment
							2 years	Payback period

Figure 5: Fiscal benefits by outcome type

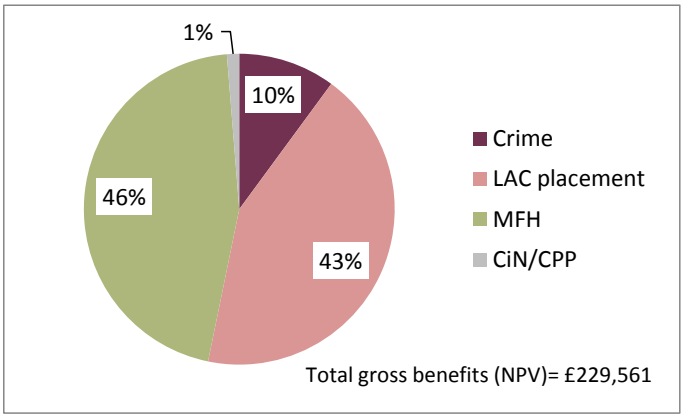
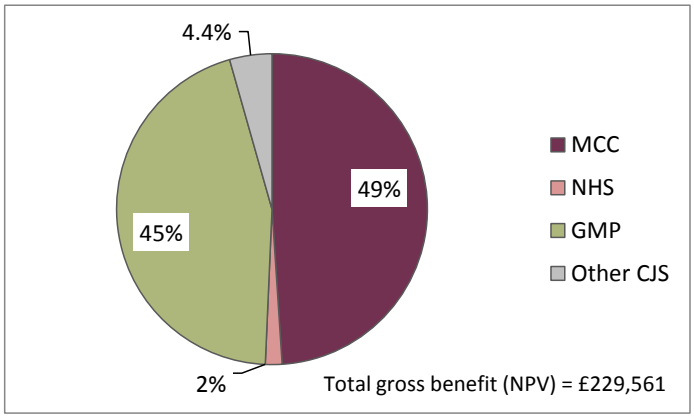


Figure 6: Fiscal benefits by benefitting agency



Sensitivity analysis

Clearly, Scenario Two is sensitive to the assumption upon which it is based. Using assumptions about deadweight and risk of care to fill the evidence gaps does create considerable uncertainty around the financial analysis. Table 3, therefore, shows the range of results obtained from different combinations of assumptions. Those scenarios shaded green result in break-even for MCC. Scenario Two is highlighted in bold to illustrate where within the range this scenario fits.

At what we can call the most pessimistic end of the scale, it is assumed that 75% of all measured improvements result from factors other than the MST intervention (deadweight) and each client would have been admitted to a

single LAC placement of just one month. In this case, a total of £1.22 is returned to the public purse for each £1 invested and break-even is achieved by the end of year 3. However, as only a proportion of the benefits accrue to MCC, the council does not achieve break-even.

At the other (optimistic) extreme, if we assume 25% deadweight and the avoidance of four months LAC placement for each client as a result of the MST intervention, then £3.63 is retuned for each £1 invested, with full payback by the end of the second year.

Table 3: Sensitivity of financial impact analysis to assumptions about deadweight and risk of care

	75% Deadweight		50% Deadweight		25% Deadweight	
Number of months LAC placement avoided*	Benefit:Cost ratio	Break-even in year ...	Benefit:Cost ratio	Break-even in year ...	Benefit:Cost ratio	Break-even in year ...
1	1.22	3	1.74	2	2.15	2
2	1.72	2	**2.23**	**2**	2.64	2
3	2.21	2	2.73	2	3.13	2
4	2.7	2	3.22	2	3.63	2

**Based on average cost of all placement types, including residential and foster*

Key	MCC break even
	MCC not break even

Conclusions

Comparing the outcomes of the 12 MST clients during the six-month pre and post intervention does demonstrate some substantial improvements, especially with respect to LAC placements, school exclusions, offending behaviour and missing from home incidents. While the absence of a control group limits our ability to conclude that these improvements are a direct result of the MST interventions, their coincidence with the timeline of the interventions does suggest the impact of the programme may be considerable.

It should also be noted that, as this analysis is based on a small number of clients measured over a relatively short period of time, the results presented above could change substantially (in either direction) when further clients are included in the analysis or outcomes are measured over a longer time period. Nevertheless, results to date suggest an encouraging early picture with the aims of the intervention being met.

The main objective of the investment is to reduce the likelihood of clients becoming looked after and, especially, requiring out-of-home placements. Referral notes from Family Resource Panel indicate all clients were 'on the edge of care' immediately prior to their MST intervention, presenting with serious behavioural issues that put themselves or other family members at risk. During the post-MST period, only two clients were admitted to residential care, each for a temporary period of approximately one month. The remaining 10 clients continued to live continuously in their family home, including the majority of those who engaged with MST as a means of supporting their return home from a residential placement.

The cost of the programme averages £8,000 per client. For comparison purposes, the cost of four weeks residential care is £12,000 and around £3,000 for the same period of foster care. Modelling the data over time suggests that preventing (on average) a two month LAC placement for each client would be sufficient to pay back the whole of the MCC investment within two years (based on the average cost of all placement types).

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