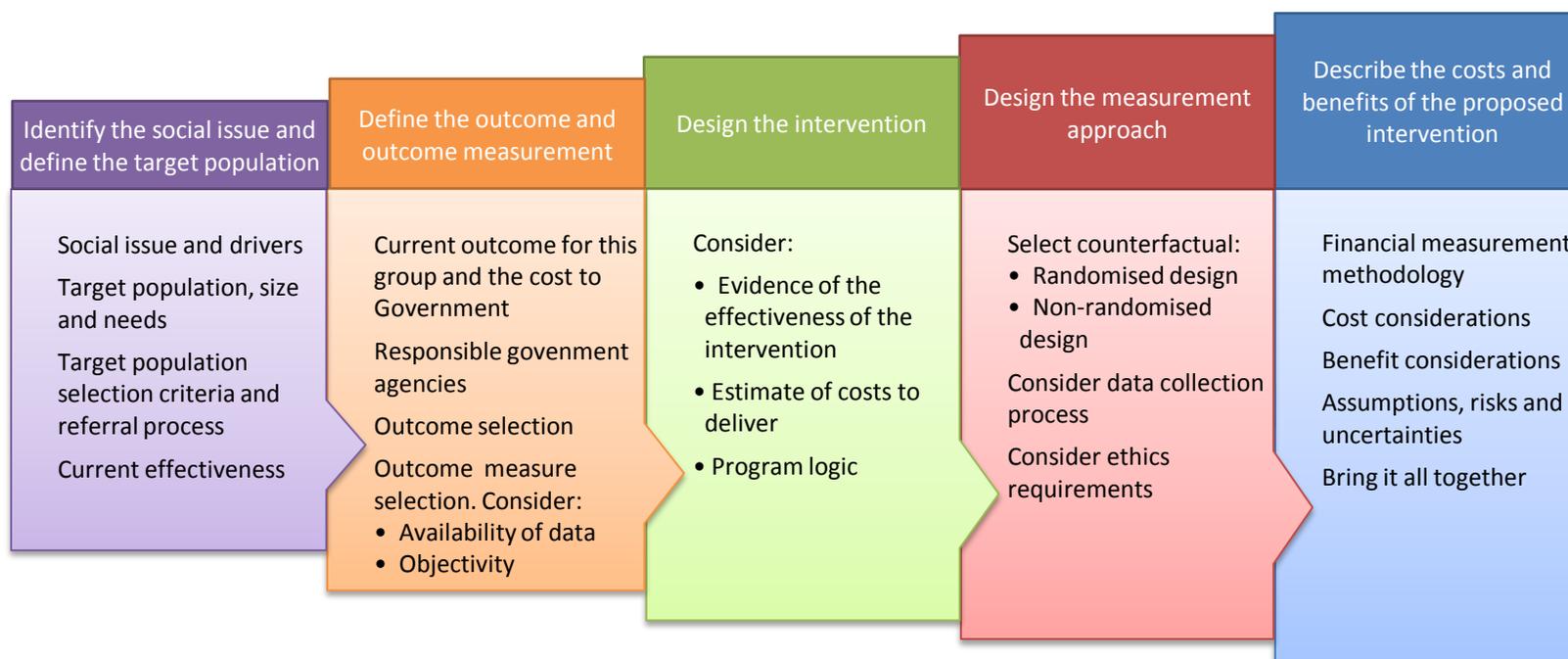# Fact Sheet 1: Case studies

## 1. Introduction

In this fact sheet, we take some current case examples and submit them to the thinking and analysis required to develop a social impact investment proposal to the NSW Government. We work through two real world case studies and apply the steps outlined in the technical guide to illustrate how to develop a robust proposal.

## 2. Steps to develop a robust proposal

**Identify the social issue and define the target population**

- Social issue and drivers
- Target population, size and needs
- Target population selection criteria and referral process
- Current effectiveness

**Define the outcome and outcome measurement**

- Current outcome for this group and the cost to Government
- Responsible govenment agencies
- Outcome selection
- Outcome measure selection. Consider:
  - Availability of data
  - Objectivity

**Design the intervention**

Consider:
- Evidence of the effectiveness of the intervention
- Estimate of costs to deliver
- Program logic

**Design the measurement approach**

Select counterfactual:
- Randomised design
- Non-randomised design

Consider data collection process

Consider ethics requirements

**Describe the costs and benefits of the proposed intervention**

- Financial measurement methodology
- Cost considerations
- Benefit considerations
- Assumptions, risks and uncertainties
- Bring it all together

# 3. Case study 1 – a program for multi-systemic therapy to prevent adolescents entering long term care

## Step 1: Identify the social issue and define the target population

Things to consider:

- Can you identify/define the target population objectively? What criteria would you use?
- How many people are in the target population?
- What are their needs?
- How does the support need vary across the target group?

| Identifying the social issue and defining the target population | |
| --- | --- |
| **Social issue and drivers** | <ul><li>Adolescents aged 10-15 years comprise the largest age group entering the care system due to behavioural problems or family breakdown.</li><li>Evidence indicates adolescents who stay in care long term are much more likely to experience poorer outcomes in health and education.</li><li>The short term and long term costs at an individual, family and societal level of going into care are high.</li></ul> |
| **Target population definition, size and needs** | <ul><li>Approximately 30% of children in care are adolescents.</li><li>Many are placed in care due to persistent anti-social behaviour, acute stress and family dysfunction.</li><li>International estimates suggest that severe and persistent antisocial behaviour accounts for a vastly disproportionate burden of the costs.</li></ul> |
| **Target population selection criteria and referral process** | <ul><li>Adolescents aged 10-15 years at high risk of being removed from their homes because of antisocial behavior in each of the 10 trial sites. Referral from any agency plus a specified set of eligibility criteria.</li><li>Referral criterion: adolescents meeting criteria for being at high risk of requiring an out-of-home care placement, specifically when this risk is associated with antisocial behaviour, including but not limited to conviction as a young offender.</li><li>The common referral criterion is antisocial behaviour. However, young people will be recruited from various settings where their antisocial behaviour is manifest in different ways (Justice, Education, Child/ Adolescent Mental Health, Social Care).</li></ul> |
| **Current effectiveness** | <ul><li>Description of the major trends:<ul><li>Flows into care (e.g. by age of child, type of referral, reason for referral).</li><li>Flows into / out of different care placements.</li><li>Average length of time spent in care across childhood for target population.</li></ul></li></ul> |

**Step 2: Define the outcome and outcome measurement**

Things to consider:

- What is the current outcome for the target population group?
- What is the desired outcome of a social impact investment?
- How would improvements in the social outcome be measured?
- Are there existing objective measures of the outcome?

| Defining the outcome and outcome measurement | |
|---|---|
| **Current outcome for this group and the cost to Government** | <ul><li>Adolescents between the ages 10-15 years comprise the largest age group entering the care system. The average time in care is 2 years.</li><li>This group is more likely than other age groups to remain in care and not return home.</li><li>Care placement costs are high, estimated to range from £20,000 (foster care) to £180,000 (residential care) per year per individual.</li><li>The estimated average placement cost throughout an individual's care journey is £117,520 (excluding social justice and legal costs).</li><li>The estimated expenditure on children in care is more than £2 billion per year.</li></ul> |
| **Responsible government agencies** | <ul><li>Primary: Family and Community Services</li><li>Secondary: Health, Justice, Education</li></ul> |
| **Outcome selection** | <ul><li>Desired outcome: Diverting adolescents from care, including reduced entry into care or fewer weeks spent in care.</li><li>Primary outcome measure: Proportion of cases assigned to long term out-of-home care placements (3 months or longer) in specialist residential provision, including placement into local authority care, incarceration, long term hospitalisation and residential schooling, at 18 months following allocation to the intervention/control group (included in the benefit calculation).</li><li>Secondary/intermediate outcome measures: Reports of offending behaviour based on police computer records, including details of custodial sentences at six-monthly intervals, for the 6 months before allocation to the intervention/control group, the six months covering the intervention period, and six-monthly until the 18-month follow up point. The number of records of offending behaviour will be obtained and six-month periods free of any offending behaviour will also be recorded but not included in the benefit calculation.</li><li>Records of school attendance and exclusions will be retrieved to count days of attendance/ exclusion.</li></ul> |
| **Outcome measure selection**<br><br>- *Available?*<br>- *Objective?*<br>- *Valid?*<br>- *Binary?* | <ul><li>Offending records are obtained from the Police National Computer and from the Young Offender Information System database at each site; these records detail information on offences, court appearances, criminal orders, police custody records and arrest rates.</li><li>School records are available from both the local schools themselves and the National Pupil Database.</li><li>Routine local authority/ agency data/ national data on out-of-home care placements linked to participant ID (including local authority care, incarceration, long term hospitalisation and residential schooling).</li><li>Metrics are available at six-monthly intervals (secondary outcomes) and at 18-monthly intervals (primary outcome).</li></ul> |

## Step 3: Design the intervention

Things to consider:

- What is the proposed intervention?
- Is there evidence that this intervention is effective at achieving the desired social outcome?
- Is there a quantitative evidence base?
- Has the intervention been independently evaluated?
- How has the intervention improved the outcome?
- How much does the intervention cost to deliver per client?

| Designing the intervention | |
| --- | --- |
| **Intervention** | <ul><li>Multi-systemic therapy (MST) is an intensive, multimodal, home-based, family intervention for youth with serious antisocial behaviour.</li><li>MST specifically aims to prevent reoffending and out-of-home placements.</li><li>Services are delivered in the young person's home and school, and in community settings, with a strong focus on treatment adherence and program fidelity.</li></ul> |
| **Evidence of its effectiveness** | <ul><li>MST has been widely adopted in the US and in other countries including Canada, the Netherlands, Norway, Sweden, Denmark, New Zealand and, most recently, the UK.</li><li>Quantitative systematic reviews have identified MST as one of the most promising interventions for reducing antisocial or offending behaviour and improving individual and family functioning.</li><li>A recent UK randomised control trial (RCT) suggested that MST adds value to current UK statutory evidence based youth services and would be best used to facilitate appropriate and cost effective organisation of statutory services for young people and their families (rather than supplant existing services).</li><li>The nature of the crisis may be associated with a specific service (e.g. young offender services are triggered by convictions, education services by repeated school exclusions) but the underlying causes in terms of family disorganisation, conflict and stressors, combined with a young person's antisocial behaviour are similar, and the outcomes in terms of risk of out-of-home placement are common to the 10 existing service sites that have been identified. Each site will be provided with:<ul><li>Multi-agency panels to identify cases that meet the eligibility criteria for MST.</li><li>A team of four MST therapists.</li><li>A supervisor: a doctoral or masters level therapist with sound knowledge of the theories underpinning MST and their application, and experience in providing clinical supervision. The MST supervisor conducts weekly group supervision and one-to-one supervision, if needed, of the MST therapists at a site to ensure they adhere to MST principles in their practice. The supervisor is also involved in selecting young people referred to the service as suitable for MST.</li></ul></li></ul> |

- Ongoing training: therapists receive a one hour weekly telephone consultation with an MST expert, onsite booster training sessions four times per year, and twice-yearly implementation reviews by the MST expert. [The association between treatment fidelity and outcomes for adolescents has been repeatedly demonstrated in trials of MST.]
- The supervisor guides clinical work according to the MST Supervisory Manual. The trial team adheres to the MST Organisational Manual in delivering MST.

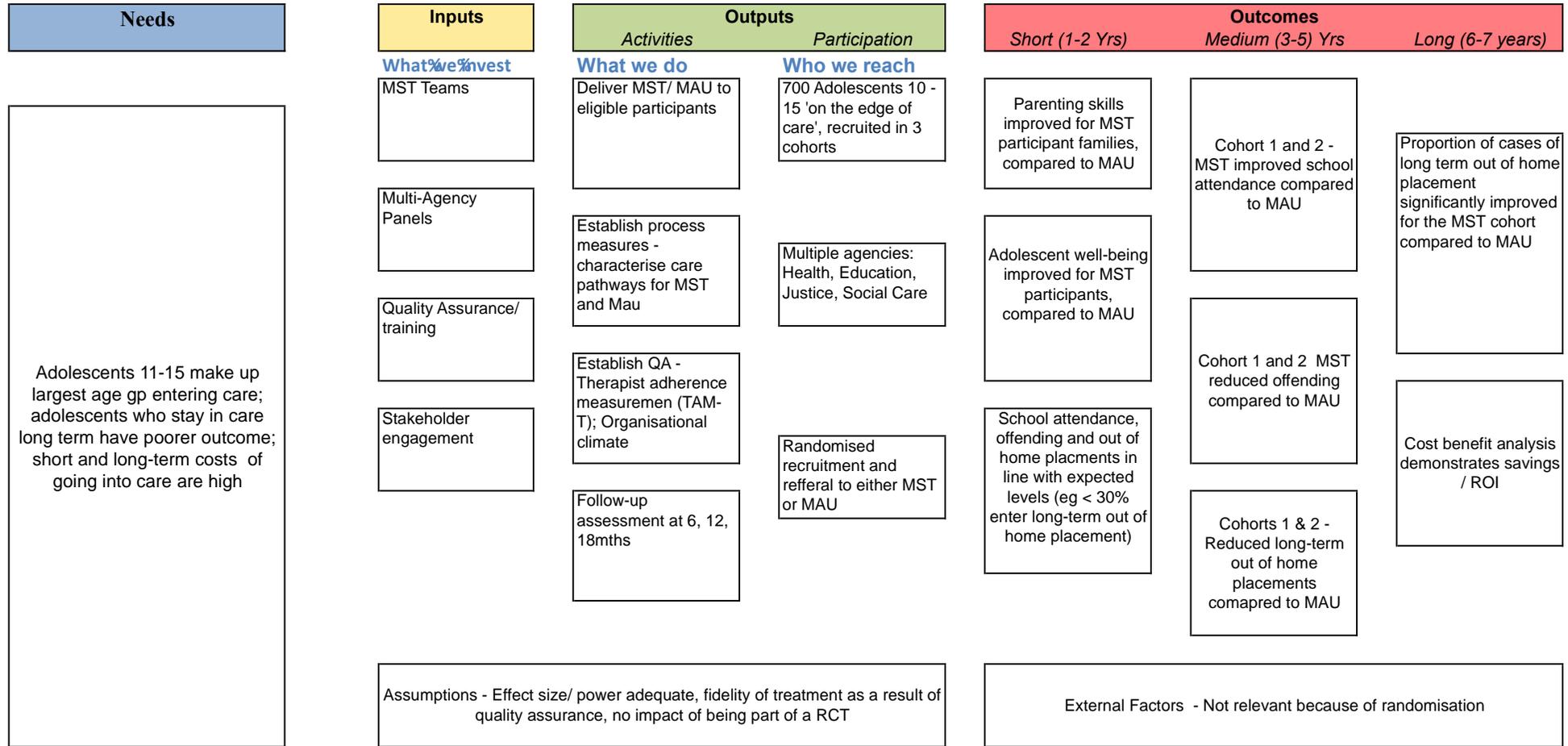| | |
|---|---|
| **Estimates of the cost to deliver** | <ul><li>Treatments are offered over a period of three to five months, with follow up 18 months post referral.</li><li>MST service duration averages 60 contact hours over four months. UK estimates indicate a program cost of £10,000 per family, including all trial related costs.</li></ul> |
| **Program logic design** | <ul><li>See below.</li></ul> |

| **Needs** | **Inputs** | **Outputs** | | **Outcomes** | | |
|---|---|---|---|---|---|---|
| | | *Activities* | *Participation* | *Short (1-2 Yrs)* | *Medium (3-5 Yrs)* | *Long (6-7 years)* |
| | *What we invest* | *What we do* | *Who we reach* | | | |

**Needs**

Adolescents 11-15 make up largest age gp entering care; adolescents who stay in care long term have poorer outcome; short and long-term costs of going into care are high

**Inputs** — *What we invest*

MST Teams

Multi-Agency Panels

Quality Assurance/ training

Stakeholder engagement

**Outputs**

*Activities — What we do*

Deliver MST/ MAU to eligible participants

Establish process measures - characterise care pathways for MST and Mau

Establish QA - Therapist adherence measuremen (TAM-T); Organisational climate

Follow-up assessment at 6, 12, 18mths

*Participation — Who we reach*

700 Adolescents 10 - 15 'on the edge of care', recruited in 3 cohorts

Multiple agencies: Health, Education, Justice, Social Care

Randomised recruitment and refferal to either MST or MAU

**Outcomes**

*Short (1-2 Yrs)*

Parenting skills improved for MST participant families, compared to MAU

Adolescent well-being improved for MST participants, compared to MAU

School attendance, offending and out of home placments in line with expected levels (eg < 30% enter long-term out of home placement)

*Medium (3-5 Yrs)*

Cohort 1 and 2 - MST improved school attendance compared to MAU

Cohort 1 and 2  MST reduced offending compared to MAU

Cohorts 1 & 2 - Reduced long-term out of home placements comapred to MAU

*Long (6-7 years)*

Proportion of cases of long term out of home placement significantly improved for the MST cohort compared to MAU

Cost benefit analysis demonstrates savings / ROI

Assumptions - Effect size/ power adequate, fidelity of treatment as a result of quality assurance, no impact of being part of a RCT

External Factors  - Not relevant because of randomisation

**EVALUATION: Framework, Data collection , Data Analysis, Reporting**

**Step 4: Design the measurement approach**

Things to consider:

- Is there an effective means of estimating the counterfactual (namely, the program design)?
- Is there adequate quantity to support the estimation procedure (namely, the sample size and statistical analysis)?
- Are there plausible estimates that the effect size relative to the level of 'noise' (or variance) in the outcome will detect what might be a reasonably expected intervention effect (namely, effect size and power)?
- How will data be managed?
- What are the ethical considerations associated with the measurement design?

| Designing the measurement approach | |
|---|---|
| **Counterfactual selection** | <ul><li>Multi-centre RCT of MST in antisocial adolescents at high risk of out-of-home placement.[1]</li><li>The randomised design was chosen to generate unambiguous evidence of impact, because:<ul><li>published evidence of replicability to non-US settings has shown mixed results</li><li>the first RCT of MST in the UK had a relatively small sample and was underpowered (statistically), but showed promising results.</li></ul></li><li>The counterfactual is Management as Usual (MAU) – delivered by professional social workers, specialist therapists, or probation officers. Interventions are extensive, multicomponent and diverse, and may involve no therapeutic intervention or individual- or family-oriented work. Duration varies.</li><li>The key difference between MST and MAU: MAU interventions are not normally delivered in a family context by a single person. Typically, no overarching model governs the selection of treatments, and there is no set of principles comparable to that of MST to organise the therapies offered. Rather, interventions are likely to be offered on an 'as needed' basis by specialist agencies to which the young person is referred.</li><li>To achieve randomisation, approximately half of the consecutive qualifying cases will be randomly allocated to MST alone and the other half to MAU:<ul><li>Randomisation will occur after consent has been obtained, the baseline assessment has been carried out, and a unique trial identifier is assigned.</li><li>Eligible consenting participants are randomly allocated to MST (the intervention group) or MAU (the control group) on a 1:1 basis by a university trials unit using a secure telephone randomisation service that ensures allocation concealment.</li><li>A computer-generated adaptive minimisation algorithm is used, incorporating a random element with the following stratification factors: treatment centre, gender, age, and age at onset of conduct problems. Strata were selected based on previous research.</li></ul></li></ul> |

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[1] For full protocol see *Trials* 2013, 14:265 http://www.trialsjournal.com/content/14/1/265

| | |
|---|---|
| **Expected effect size of the intervention & calculation of the effective sample size** | • Based on previous evidence, effective sample size has been calculated as 350 participants per group to enable robust statistical analysis. This is based on the following considerations:<br>  &ndash; expected impact of the intervention, trial recruitment levels, and out-of-home placement levels (30%) in the MAU group<br>  &ndash; randomisation on a 1:1 basis to MST or MAU<br>  &ndash; a sample size of 700 participants will yield 86% power to detect a 10% difference in out-of-home placements (a reduction from 30% to 20%). |
| **Data collection** | • Participants will be followed using data extraction from routine administrative data.<br>• Agreements and arrangements are in place (for extraction, linkage/secure storage, etc.). |
| **Ethics considerations** | • Randomisation excludes some of the target population.<br>• Confidentiality associated with recruitment/ tracking.<br>• Informed consent. |

## Step 5.  Describe the costs and benefits of the proposed intervention (financial measurement and modelling)

Things to consider:
- What is the level of current government spending on target population?
- What are the predicted costs and benefits if the program were not delivered (known as deadweight)?

*Benefits*
- What is the estimate of potential improvement in outcomes of the intervention?
- How much will the government save if the outcome is achieved?
- Is the view of benefits comprehensive?

*Costs*
- What are the additional predicted costs of the program relative to its predicted benefits?
- Is the view of costs comprehensive? Capital, revenue and in-kind?

*Adjustments*
- Is there a likely time lag/ drop off in benefits that requires discounting of the benefits to be realised?
- Is it necessary to adjust for risk/ uncertainty?

| **Describing the costs and benefits of the proposed intervention** | |
| --- | --- |
| **Financial measurement methodology** | • Cost benefit analysis (CBA) to demonstrate that successfully implemented MST to divert adolescents from care will result in cost savings for government. These cost savings exceed the cost of delivering the service. <br> • The benefit to be modelled: reduced placement costs [defined as being assigned to long term out-of-home placements (i.e. 3 months or longer) in specialist residential provision, including placement into local authority care, incarceration, long term hospitalisation and residential schooling, at 18 months following allocation to the intervention/control group]. <br> • MAU sees 30% of cases entering long term placement within an 18 month window. <br> • The intervention is expected to reduce this rate of placement to 20%. <br> • Average long term placement is 2 years, with an estimated annual average placement cost for adolescents assigned to out-of-home care = £88,500. |
| **Cost considerations** *(including all costs to government, e.g. management, monitoring, referral, etc.)* | • MST/MAU delivered to 700 participants, with 18 month follow up, in three tranches over seven years. <br> • MST delivery: £10,000 per adolescent treated (including multiagency panel, therapist salaries, quality assurance, case management, processing, follow-up) = £3,500,000. <br> • MAU: Additional costs related to being part of the trial above and beyond usual delivery costs of MAU: £1,000 per referred adolescent = £350,000. <br> • Note: in this trial, the control group receives MAU so service delivery costs of this group are not included in total costs because they |

would have occurred anyway. However, the costs of being part of the trial (e.g. referral, additional assessment, randomisation and follow up) must be included.

- Total cost of service (Intervention + Control additional costs) = Intervention (£10,000 [unit cost] x 350 [number of participants]) + (£1,000 [unit cost] x 350 [number of participants]) = £3,850,000.

- Evaluation (advice/ analysis/ reporting) ~10 % of total service cost, annualised = £380,000.

| | |
|---|---|
| **Benefit considerations** | <ul><li>Estimated average annual placement cost for adolescents assigned to out-of-home care = £88,500.</li><li>For adolescents assigned to long term out-of-home care, the average time in care after removal from family is 2 years.</li><li>Base rate of long term out-of-home care placements (of the MAU group) = 30% (initially based on historical rate).</li><li>Target rate of long term out-of-home placements (of the MST group) = 20% (base case).</li><li>Percentage reduction in rate of long term out-of-home care placements = 10% (base case).</li><li>10% reduced incidence in the intervention group represents a saving of £6,195,000, based on avoiding the average long term placement of 2 years.</li><li>Key additional assumptions for the CBA:<ul><li>diversion from long term out-of-home care avoids 2 years in care</li><li>engagement rate expected = 88%</li><li>retention rate expected = 85%.</li></ul></li><li>The nature of the primary benefit (cashable savings) is the saved costs of long term placement of adolescents.</li><li>The primary benefit recipient is Family and Community Services.</li><li>Secondary benefits are not captured in the CBA. These include youth offending outcomes, adolescent wellbeing outcomes, and family functioning outcomes. However, these will be explored as part of the evaluation.</li><li>The benefits in the CBA will be captured over the seven years of the contract, based on long care episodes averted during the follow up period (18 months) for each recruitment tranche. The follow up of recruited tranches is expected to be at approximately 36 months, 48 months and 60 months. The total benefit will be captured 18 months after the last participant is recruited, which is expected to occur in year 7.</li></ul> |
| **Assumptions, risks and uncertainties** | <ul><li>Inflation.</li><li>Optimism bias – adjustment not required, given cohort data and evidence base.</li><li>Scenario analysis – proposals would usually include analyses of different performance scenarios.</li><li>Discount rate – 7% on costs and benefits (to calculate NPV) to meet the NSW Government's expectations.</li></ul> |
| **Bring it all together** | <ul><li>Total cost = £4,025,000 (over seven years).</li><li>Total benefit = [350 * 88% * 85% * 88,500 * 10% * 2] = £4,633, 860 (over seven years).</li><li>BCR = 1.1</li></ul> |

# 4. Case study 2 – a program for reduced reoffending among short sentence offenders, adapted from the Peterborough social impact bond (SIB)

**Step 1: Identifying the social issue and defining the target population**

| Identifying the social issue and defining the target population | |
| --- | --- |
| **Social issue and drivers** | • Reoffending rates have remained stubbornly high, particularly among short sentence prisoners.<br>• 60% of short sentence prisoners reoffend within a year of release.<br>• Rehabilitation of offenders is a cornerstone of the government's criminal justice policy.<br>• A service gap: no statutory support on release. There is clear evidence of an unmet need from a group who typically receive little or no support on release.<br>• Costs to the state are great and the lack of support does not break the cycle of crime. |
| **Target population definition, size and needs** | • There were approximately 86,000 re-offences following a custodial sentence of less than one year in the UK in 2012.<br>• Evidence indicates that needs vary considerably across the target population. These include substance abuse issues, mental health issues, securing housing, securing employment, and improving the education, skills, and confidence of the incarcerated both during and after confinement. |
| **Target population selection criteria and referral process** | • Intervention is offered on a voluntary basis to all adult males (aged 18 years and over) receiving custodial sentences of less than 12 months and discharged from HMP Winchester (fabricated name), UK during the program period.<br>• The aim is to recruit 3,000 participants in three tranches of 1,000 each.<br>• All prisoners fitting the criteria will be included in outcome measurement irrespective of participation in the program to prevent 'cherry picking'. |
| **Current effectiveness** | Description of the major trends:<br>• reconviction rates/ patterns<br>• average length of incarceration<br>• average costs of incarceration. |

## Step 2: Define the outcome, and outcome measurement

| Defining the outcome and outcome measures | |
|---|---|
| **Current outcome for this group and the cost to Government** | • 60% of short sentence prisoners reoffend within a year of release.<br>• The average cost of reoffending (cost per prisoner per year) is estimated at £34,840.[2] |
| **Responsible government agencies** | • Primary: Justice.<br>• Secondary: Health, Family and Community Services. |
| **Outcome selection** | Primary outcome:<br>• The frequency of reconviction events of the intervention cohort within 12 months of release, compared to a similar group of short sentenced male prisoners across the UK.<br>• The data for this measure are drawn from the Ministry of Justice extract of the Police National Computer.<br>• Reconviction is a proxy measure for reoffending.<br><br>Secondary/intermediate outcome measures:<br>• improved health, wellbeing and social status (including drug and alcohol issues), improved education/ skills/ improved employment outcomes. |
| **Outcome measure selection**<br>• *Available?*<br>• *Objective?*<br>• *Valid?*<br>• *Binary?* | • A clear, single metric that is already measured and for which good data is available.<br>• A measure that helps to prevent 'cherry-picking' – compared to a simpler yes/no reconviction measure, which could introduce an incentive to focus on those least likely to reoffend at all.<br>• A measure that has the most direct link to costs. |

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[2] Based on estimates for 2013/2014 in UK Unit Cost Database v1.4

## Step 3: Design the intervention

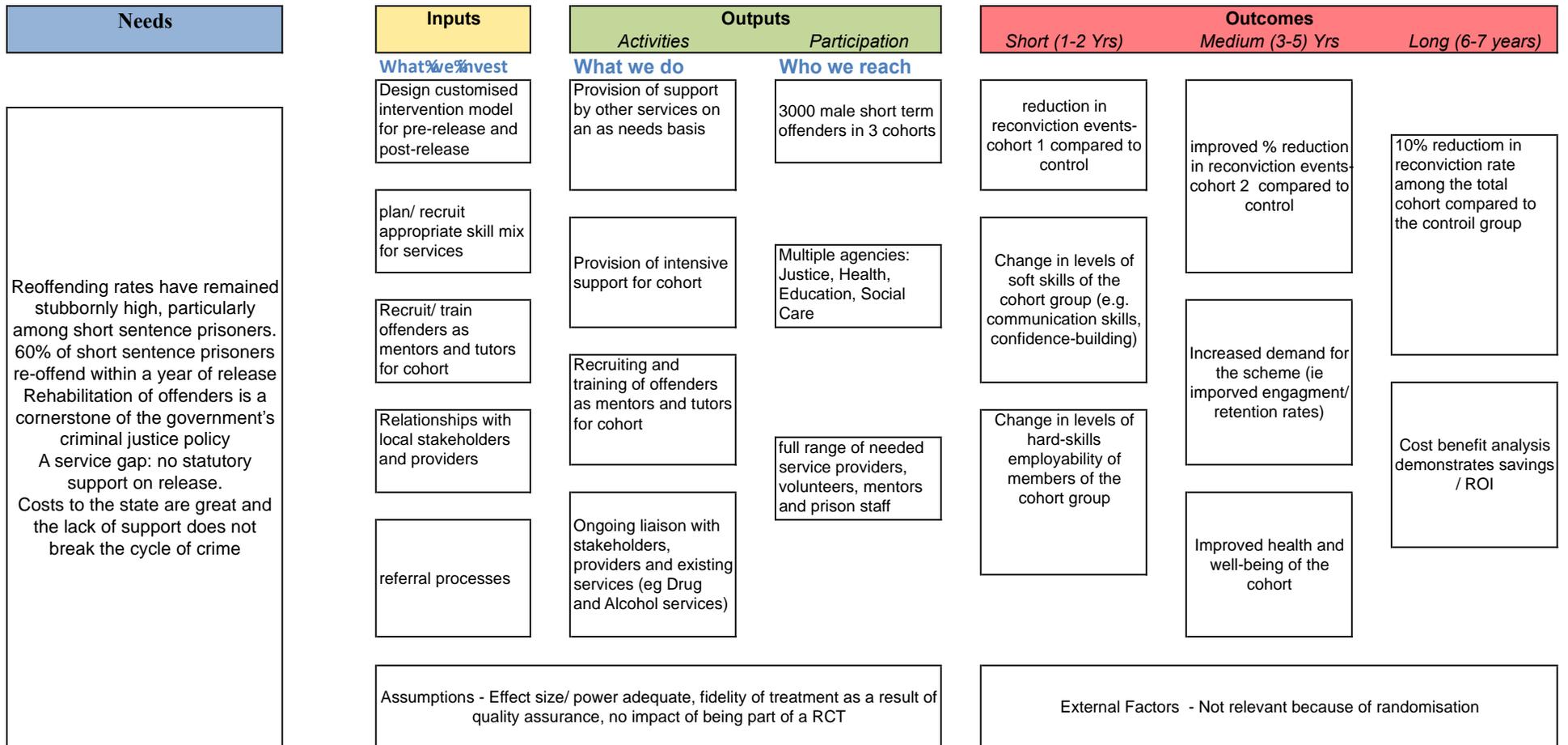| Designing the intervention | |
|---|---|
| **Intervention** | • An intensive rehabilitation service to provide tailored wrap around services to address the multiple and complex needs of the target group, commencing before release, in the weeks following release and in the longer term.<br><br>• A consortium of six organisations under the auspices of the One* Service offer a tailored service that focuses on the individual's immediate needs such as accommodation, medical services, family support, employment and training, benefits and financial advice. This is to provide stability and support for the prisoners. The intervention does not duplicate existing services and works closely with the prison, public services and local charities. |
| **Evidence of its effectiveness** | • Prevalence of factors associated with reoffending is well known, as are factors associated with desistance.<br><br>• While there is evidence that addressing risk factors is important in reducing reoffending, desistance research suggests that the factors promoting desistance are not always simply the reverse of those risk factors that have contributed to the onset of criminal activity.<br><br>• There is also some evidence that 'pre-release' interventions to prepare prisoners for release can be effective in reducing reoffending.<br><br>• Research suggests that interventions are more likely to be effective if they address several interlinked needs in a coordinated and holistic way (sometimes referred to as multimodal interventions) and take an individualised approach (tailored to the specific range of needs presented by each offender).<br><br>• There has been less research evaluating alternatives/ programs to mitigate the risks of reoffending.<br><br>• There are some promising findings. Substance abuse treatment programs (e.g. drug courts) have demonstrated approximately a 25% reduction in reoffending. Certain mental health treatment programs have also yielded encouraging results. Behavioral therapies, for instance, have been successfully administered to young adults aged 18 to 25 years. Interventions to manage health/ substance abuse issues have been shown to be effective in reducing reoffending.<br><br>• The proposed intervention is based on the aggregate evidence; there are no previous randomised controlled trials (RCTs).<br><br>• The proposed intervention is in line with evidence based practice in reducing reoffending, combining 'tried and tested' methods that find 'pragmatic solutions' to issues which are linked to offending. |
| **Estimates of the cost to deliver** | • A total cost of £5 million. |
| **Program logic design** | • See below |

| Needs | Inputs | Outputs | | Outcomes | | |
|---|---|---|---|---|---|---|
| | | *Activities* | *Participation* | *Short (1-2 Yrs)* | *Medium (3-5) Yrs* | *Long (6-7 years)* |

**What we invest**

**What we do**

**Who we reach**

Reoffending rates have remained stubbornly high, particularly among short sentence prisoners. 60% of short sentence prisoners re-offend within a year of release
Rehabilitation of offenders is a cornerstone of the government's criminal justice policy
A service gap: no statutory support on release.
Costs to the state are great and the lack of support does not break the cycle of crime

Design customised intervention model for pre-release and post-release

plan/ recruit appropriate skill mix for services

Recruit/ train offenders as mentors and tutors for cohort

Relationships with local stakeholders and providers

referral processes

Provision of support by other services on an as needs basis

Provision of intensive support for cohort

Recruiting and training of offenders as mentors and tutors for cohort

Ongoing liaison with stakeholders, providers and existing services (eg Drug and Alcohol services)

3000 male short term offenders in 3 cohorts

Multiple agencies: Justice, Health, Education, Social Care

full range of needed service providers, volunteers, mentors and prison staff

reduction in reconviction events- cohort 1 compared to control

Change in levels of soft skills of the cohort group (e.g. communication skills, confidence-building)

Change in levels of hard-skills employability of members of the cohort group

improved % reduction in reconviction events- cohort 2 compared to control

Increased demand for the scheme (ie imporved engagment/ retention rates)

Improved health and well-being of the cohort

10% reductiom in reconviction rate among the total cohort compared to the controil group

Cost benefit analysis demonstrates savings / ROI

Assumptions - Effect size/ power adequate, fidelity of treatment as a result of quality assurance, no impact of being part of a RCT

External Factors - Not relevant because of randomisation

**EVALUATION: Framework, Data collection , Data Analysis, Reporting**

## Step 4: Design the measurement approach

| Designing the measurement approach | |
|---|---|
| **Counterfactual selection** | <ul><li>The control group will be drawn from all prisoners released from custody with sentences of less than 12 months, within the same time period from other prisons nationally, and constructed using a propensity score matching method.[3]</li><li>One-to-many propensity score matching will be used to select the control group: this means that each cohort prisoner will be matched to up to 10 control group prisoners.</li><li>The strength of using propensity score matching as an approach to building the control group is that it allows the assessor to control for different characteristics of the offenders.</li><li>The main reason that a randomised control trial (RCT) is not proposed is that there is no policy appetite for a situation where offenders who volunteered or were eligible for SIB-funded programs would have to be kept out of the program to serve as the control group.</li><li>An RCT is also likely to be more time consuming and costly to operationalise.</li><li>The aim is to achieve a reduction of 10% in the frequency of reconviction events in each cohort of 1,000 prisoners (from the baseline generated by the matched control group).</li></ul> |
| **Expected effect size of the intervention and calculation of the effective sample size** | <ul><li>A 7.5% reduction over the three cohorts was calculated as the reduction likely to be required to reach statistical significance for a total sample of 3,000 prisoners. These calculations were based on historical data on the mean frequencies of reconviction events for short sentenced prisoners discharged from HMP Winchester, using a 90% level of statistical significance with a power of 80% and a 1:10 ratio of cases to matched control group.</li><li>A reduction of this magnitude with this sample size will plausibly allow the conclusion that the reduction is not due to chance.</li></ul> |
| **Data collection** | <ul><li>Participants will be followed using data extraction from routine administrative data.</li><li>Agreements and arrangements are in place (for extraction, linkage/secure storage, etc.).</li></ul> |
| **Ethics** | <ul><li>No significant specific issues other than usual conduct of such programs.</li></ul> |

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[3] See Cave S, Williams T, Jolliffe D, Hedderman C. *Peterborough Social Impact Bond: an independent assessment Development of the PSM methodology*. Ministry of Justice Research Series 8/12 May 2012 for full details https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/217392/peterborough-social-impact-bond-assessment.pdf

## Step 5. Describe the costs and benefits of the proposed intervention (financial measurement and modelling)

| **Describing the costs and benefits of the proposed intervention** | |
| --- | --- |
| **Financial measurement methodology** | <ul><li>Cost benefit analysis (CBA) to demonstrate the impact of 10% reduced reconviction, on the basis that at least 60% of the cohort would be expected to have an average reconviction cost in the 12 months following release.</li><li>The benefit to be modelled: reduced reoffending on a per participant basis.</li><li>The average cost of reoffending (cost per prisoner per year) is estimated at £34,840.[4]</li><li>The intervention is expected to reduce this rate of reoffending by 10% in each cohort.</li></ul> |
| **Cost considerations**<br>(*including all costs to government, e.g. management, monitoring, referral, etc.*) | <ul><li>Intervention delivered in three tranches over seven years.</li><li>Delivery of the intervention: delivered to 3,000 people (referral, staff, case management, peer support training, lay volunteer training and management, performance monitoring) = £4,500,000.</li><li>Evaluation (advice/analysis/ reporting) ~10 % of total service cost provision, annualized = £500,000.</li></ul> |
| **Benefit considerations** | <ul><li>The value of the outcome payment is determined by two elements:<ul><li>value for each reduced reconviction event</li><li>the number of reduced reconviction events, based on the difference in mean reconviction events between the Winchester cohort (intervention group) and the control group.</li></ul></li><li>A cap placed on the outcome payments, ensuring that its liability is limited: once the reduction in reconviction events reaches the specified absolute cap in terms of pounds, the outcome payment will not increase.</li><li>Each cohort will be followed for a maximum of two years regardless of the number of unique offenders recruited by that time. The cohort will close earlier if 1,000 offenders are discharged from HMP Winchester in less than two years. Note: Two years is required to properly assess the one-year period following their discharge from prison.</li><li>Estimated average annual cost of reoffending = £34,840.</li><li>Base rate of reoffending (at the average cost level) within one year of release = 60% of participants.</li><li>Target rate for intervention group = 50% (base case).</li><li>Percentage reduction in rate of reconviction = 10% (base case).</li><li>10% reduced incidence in the intervention group represents a saving of £10,452,000.</li></ul> |

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[4] Based on estimates for 2013/2014 in UK Unit Cost Database v1.4

- Key additional assumptions for the CBA:
  - Reoffending period = 1 year
  - Engagement rate expected = 85%
  - Retention rate expected = 65%
- The nature of the primary benefit (cashable savings) is the annual saved costs of reoffending.
- The primary benefit recipient is the Ministry of Justice.
- Secondary benefits are not captured in the CBA. These include wellbeing outcomes, family functioning outcomes, health outcomes, education outcomes, employment outcomes.
- The timeframe of the benefit to be captured in the CBA: a 10% reduction in reconviction events over seven years.

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| **Assumptions, risks and uncertainties** | <ul><li>Inflation.</li><li>Optimism bias – cohort data is of high quality but evidence base not of the highest level; estimated at 10%.</li><li>Scenario analysis – proposals would usually include analyses of different performance scenarios.</li><li>Discount rate – 7% on costs and benefits (to calculate NPV), based on NSW Government expectations.</li></ul> |
| **Bring it all together** | <ul><li>Total cost = £5,000,000 (over 7 years)</li><li>Total benefit = [3000 * 85% * 65% * 34,840 * 10%] = £5,774,730 (over 7 years)</li><li>BCR = 1.15</li></ul> |